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ORIGINAL

Quality of life of patients with Parkinson's disease receiving rehabilitation treatment

Calidad de vida de pacientes con enfermedad de Parkinson que reciben tratamiento rehabilitador

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ABSTRACT

Introduction: physical rehabilitation in the early stages of Parkinson's disease can prevent or slow down long-term problems that limit mobility and activity, and thereby contribute to the quality of life of patients who suffer from this disease.
Objective: to determine the quality of life in patients with Parkinson's disease receiving rehabilitation treatment in the municipality of Pinar del Río, in 2023.
Methods: observational, descriptive and cross-sectional study of a universe of 68 patients diagnosed with Parkinson's disease in the municipality of Pinar del Río and the sample of 27 patients who met the inclusion and exclusion criteria. Theoretical, empirical and statistical methods were used.
Results: the largest number of patients are in the group of 70 to 79 years old: 12 (44,4 %), and in the group of males: 17 (62,9 %). According to the Barthel Index (62,9 %) most patients have moderate dependence. After administering SF-36 Quality of Life Health Questionnaire, results showed that physical functioning dimension obtained the highest scores, while general health dimension got the lowest ones. Patients who initiated rehabilitation treatment showed significantly lower scores than those who had been on treatment for some time with statistically significant differences ($p < 0,001$).
Conclusions: rehabilitation treatment in patients with Parkinson's disease has a positive influence on their quality of life.

Keywords: Quality Of Life; Parkinson's Disease; Clinical Evolution; Patients; Rehabilitation; Sex.

RESUMEN

Introducción: la rehabilitación física en fases iniciales de la enfermedad de Parkinson puede evitar o enlentecer los problemas a largo plazo que limitan la movilidad y la actividad y con ello contribuir a la calidad de vida de los pacientes que la padecen.
Objetivo: determinar la calidad de vida en pacientes con enfermedad de Parkinson que reciben tratamiento rehabilitador en el municipio Pinar del Río, en el año 2023.
Métodos: estudio observacional, descriptivo y transversal, con un universo 68 pacientes con diagnóstico de enfermedad de Parkinson del municipio Pinar del Río y la muestra de 27 pacientes que cumplieron con los criterios de inclusión y exclusión. Se utilizaron métodos teóricos, empíricos y estadísticos.
Resultados: el mayor número de pacientes se encontraban entre 70 y 79 años 12 (44,4 %) y del sexo

masculino 17(62,9 %). La mayoría de los pacientes tienen dependencia moderada según el Índice de Barthel (62,9 %). Al aplicar el Cuestionario de Salud SF-36 de calidad de vida, la dimensión de función física obtuvo las puntuaciones más altas y la dimensión de salud general las más bajas. Los pacientes que iniciaron el tratamiento rehabilitador mostraron puntuaciones significativamente más bajas que los llevaban algún tiempo en el tratamiento, con diferencias estadísticamente significativas (p<0,001).
Conclusiones: el tratamiento rehabilitador en pacientes con enfermedad de Parkinson influye de manera positiva en su calidad de vida.

Palabras claves: Calidad De Vida; Enfermedad De Parkinson; Evolución Clínica; Pacientes; Rehabilitación; Sexo.

INTRODUCTION

Parkinson's disease (PD) is a chronic and progressive neurodegenerative disorder with repercussions on the voluntary control of movement, balance and gait, among other motor and vegetative functions. It is caused by the degeneration and death of cellular structures in the brain, causing the alteration in the production of the molecule dopamine, which is responsible for the coordination and generation of muscle movements.[1]

It is the most common degenerative disease after Alzheimer's disease, and usually appears in the sixth decade of life, characterized by the presence of motor and non-motor symptoms. The global prevalence of PD ranges from 100 to 300 cases per 100,000 inhabitants.[2]

In recent times, the term “quality of life” has been widely used by specialists from various disciplines, such as philosophers, economists, sociologists and health personnel, regardless of the ideology or political-philosophical position they represent.[3]

Abreus Mora *et al*.[4], emphasize that physical limitations affect the quality of life of patients with PD, particularly in the patients' home. They analyze the most frequent issues, trying to establish their impact on patient-family environment, both affectively and psychologically. They consider that only in the mild and moderate stages of the disease is it feasible not to receive care from other people.

Rehabilitation is a complex process that results from the integrated application of many procedures to help individuals reach their optimal functional state, both at home and in their community to the extent permitted by the appropriate use of all residual capacities.[5]

Despite the best medical or surgical treatments for PD these patients gradually develop significant physical problems. The physician´s main priority is to help them to maximize their physical capacity, decrease secondary complications and improve their quality of life throughout the course of the disease. Additionally, physician will use various methods of functional evaluation, which will allow a better control of the disease by applying an appropriate treatment.[6]

The objective of this research is to determine the quality of life in patients with PD who receive rehabilitation treatment in the municipality of Pinar del Río, in 2023.

METHODS

An observational, descriptive, cross-sectional study was conducted to determine the quality of life of patients with PD who receive rehabilitation treatment in the municipality of Pinar del Río, in 2023.

The universe consisted of 68 patients diagnosed with PD who reside in the municipality of Pinar del Río.

The sample consisted of 27 patients who met the inclusion and exclusion criteria.

Inclusion criteria

- Receiving rehabilitation treatment at the four Comprehensive Rehabilitation Services of the municipality of Pinar del Río.
- Agreeing to participate in the research.

Exclusion criteria

- Patients with PD who were not in the health care area during the research period.
- Patients who discontinued rehabilitation treatment during the study period.

For data collection, the patients under study were scheduled for medical appointments. After an initial interview, a detailed physical examination was done in search of disabling symptoms of the disease. In addition, information from each patient was obtained from the individual and family medical records.

Each patient was administered a survey to obtain general sociodemographic data and clinical characteristics of the disease, with a focus on identifying risk factors. The Barthel Index (BI) was also used, and SF-36 Quality

of Life Health Questionnaire was administered.

The obtained data was entered into a Microsoft Excel database. A non-parametric test of independence of criteria was used (Chi-square distribution test) with a significance level of 5 %. Subsequently, the data was represented in tables and processed using descriptive statistics methods such as percentage, mean, median and standard deviation.

The psychometric properties of the scales were studied, including proportion of non-responses, reliability (Cronbach's alpha coefficient), and the correlation of items that make up each dimension/scale with the total score of the scale.

RESULTS

Table 1. Age and sex

Age groups	Sex				Total	
	Female		Male			
	No.	%	No.	%	No.	%
50- 59	-	-	2	7,4	2	7,4
60- 69	3	11,1	5	18,5	8	29,6
70- 79	5	18,5	7	25,9	12	44,4
80 and up	2	7,4	3	11,1	5	18,5
Total	**10**	**37,1**	**17**	**62,9**	**27**	**100**

X^2 = 3,5231 P = 0,0605 IC. 95% (0,89 - 12,8)

The largest number of patients are in the group of 70 to 79 years old: 12 (44,4 %), and in the group of males: 17 (62,9 %). (table 1)

Hypokinesia was present in all patients, both female 10 (100 %) and male 17 (100 %). Tremor was present in 5 female patients (18,5 %) and 12 male patients (44,4 %), while stiffness was present in 7 female patients (25,9 %) and 11 male patients (40,7 %), as the most frequent disabling symptoms presented in the study sample. (figure 1)

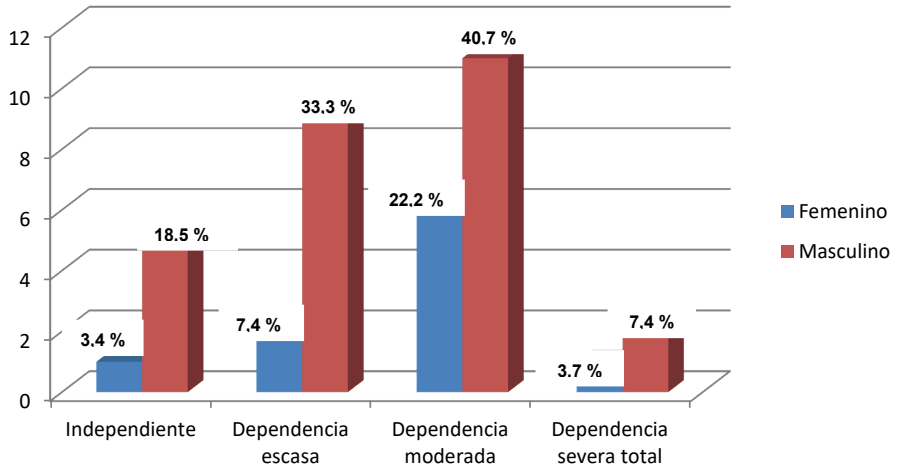

Figure 1. Disability according to Barthel Index

The majority of patients have moderate dependence according to the Barthel Index (62,9 %): 22,2 % female and 40,7 % male, followed by those with low dependence (40,7 %): 7,4 % female and 33,3 % male. (figure 2)

Table 2. Psychometric properties of the SF-36 Health Questionnaire dimensions of quality of life and descriptive values

Descriptive values	% No response	Cronbach's alpha	Item total correlation	$\bar{X}$	SD	MD	Range observed	Floor Effect	Ceiling effect
Physical functioning	0,1	0,89	0,48- 0,80	88,3	16,9	94,4	0- 100	0,3	38,1
Physical role	0,0	0,92	0,78- 0,85	72,9	40,1	100	0- 100	19,4	63,5
Pain	0,0	0,84	0,75	75,1	28,8	88,9	0- 100	1,5	45,5

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General health	0,1	0,83	0,50- 0,75	43,9	26,6	40,0	0- 100	2,9	0,7
Vitality	0,8	0,70	0,52- 0,69	54,6	22,7	55,0	0- 100	1,1	1,3
Social functioning	1,0	0,89	0,82	76,6	29,3	88,9	0- 100	3,3	47,7
Emotional role	0,0	0,91	0,78- 0,84	71,4	41,5	100	0- 100	21,9	63,6
Mental health	0,1	0,87	0,65- 0,74	55,9	23,2	60,0	0- 100	0,7	0,3
Transition of health status	0,4	-	-	63,9	75,0	26,2	0- 100	3,6	21,2
X: Mean; SD: Standard Deviation; MD: Median									

Table 2 shows the psychometric properties as well as the descriptive parameters of each dimension of SF-36. Non-response to items rates were consistently low and below 1 %. All dimensions reliability was higher than 0,70. Minimum value (vitality dimension) = 0,79 and maximum value (physical role scale) = 0,92. Most of the correlations of the items of a scale with the total of the scale showed intermediate-high ranges; only in the case of vitality the maximum correlation value is lower than 0,70.

Table 3. Differences in the scores of the SF-36 Questionnaire based on the duration of participation in the rehabilitation treatment

	Start	1-6 months	7-12 months	13-18 months	19-24 months
Physical functioning	69,7(26,2)	89,4(15,1(	91,6(13,0)	91,5(14,1)	91,6(13,6)*
Physical role	33,5(42,1)	87,6(29,7)	82,1(32,4)	82,1(33,0)	85,0(29,6)*
Pain	39,1(25,1)	74,6(25,9)	78,7(23,7)	82,1(33,0)	85,0(29,6)*
General health	21,0(19,3)	43,2(28,2)	47,7(25,7)	48,6(26,5)	53,5(24,6)*
Vitality	29,8(17,9)	54,2(21,8)	57,9(19,1)	61,3(21,5)	58,2(22,8)*
Social functioning	52,0(38,0)	77,3(28,4)	84,7(22,5)	81,2(25,6)	81,7(26,2)*
Emotional role	34,1(43,0)	82,6(36,0)	82,8(32,3)	74,5(39,7)	76,6(39,0)*
Mental health	30,0(18,0)	51,1(23,9)	55,9(23,4)	59,7(20,9)	61,4(20,8)*
Transition of health status	55,3(27,3)	57,3(28,2)	68,1(25,9)	73,2(24,5)	66,1(23,7)*
*p < 0,001					

The scores obtained by patients based on the duration of participation in rehabilitation treatment are presented in table 3. Statistically significant differences between groups were found in all dimensions (p < 0,001). This indicates that patients who initiated rehabilitation treatment showed significantly lower scores than those who had been undergoing rehabilitation treatment for some time.

DISCUSSION

It has been demonstrated that PD affects more than 1 % of individuals over 60 years old. Although its etiology is not clear yet, it is estimated that the risk of developing PD increases every year. This shows that the risk is directly proportional to age. This correlation is evidenced in this research.[7]

In a study conducted in Buenos Aires, Argentina (2020) on the epidemiology of PD, the prevalence reported does not concur with that of this research, since it represents the age group of 80 years and older.[8]

The results obtained in the majority of the worldwide studies show that the risk for males compared to females is 3 % to 1 %. Literature suggests that this could be related to the neuroprotective effect of estrogen in the central nervous system. They also relate the higher risk for males with factors such as excessive work, stress, and exposure to various environmental factors.[9]

In PD there is a plenty of motor symptoms whose importance should not be underestimated for several fundamental reasons: they can be the key to an early diagnosis of the disease, their frequency of presentation is remarkable, they are determinants of quality of life and their treatment is challenging, which has important prognostic implications. Hence, timely diagnosis and treatment will improve the quality of life of these patients.[10]

The study of non-motor symptoms is currently important due to the degree of disability they cause in patients. These symptoms are often missed by doctors during follow-up appointments, as they focus mostly on motor symptoms. Some triggering factors are currently under discussion, such as depression and chronic stress, which are often found to be associated.[11]

Rehabilitation plays a crucial role in PD, mainly when administered early and consistently throughout life. After an adequate functional evaluation, the primary goal is to get the patient to make large, rhythmic,

repetitive and coordinated movements. The objective of the rehabilitation treatment program is to maximize the patient´s independence and self-sufficiency. Before starting any type of rehabilitation, it is necessary to inform the patient about the characteristics of the process and ensure his/her cooperation. It is necessary to explain that with timely and adequate treatment he/she can lead a normal life.[12]

In Cuba, the Primary Health Care System where all chronic diseases are managed, people suffering from this disease are guaranteed access to a medical and rehabilitation treatment program aimed at improving their health.

The Barthel Index is considered by some authors as the most appropriate scale for assessing the activities of daily living. Currently, it is still widely used, both in its original form and in some of its versions. This index provided information from both the overall score and from each of the partial scores for each activity. The activities are assessed differently. Points are assigned as 0, 5, 10 or 15, which helped to better understand the specific deficiencies of the individuals and facilitated the assessment their temporal evolution.[13]

When administered the SF-36 Quality of Life Health Questionnaire to the patients included in the sample, the results obtained in various dimensions show that the health status of patients with PD who are receiving rehabilitation treatment is compromised.

These results are similar to the findings found in other studies on quality of life that have used SF-36. In all cases, patients with PD undergoing rehabilitation treatment show health perception scores below those of their reference populations and report quality of life assessments similar to those reported by other groups with chronic diseases (somatic and/or psychiatric).[14,15]

Research on quality of life of patients with PD undergoing rehabilitation treatment has shown a significant improvement in quality of life after admission and continued participation in this type of treatment.[16]

The results of this research, based on a cross-sectional design, are limited in terms of providing assessments of changes resulting from continued participation in rehabilitation treatment. However, they do allow for the observation of differences in health status perception between those who start the treatment and those who have been in the treatment for a while. This suggests an improvement in the quality of life. The major difference is observed between the group of subjects who start the treatment and those who have been in the treatment for six months. From that moment on, the average scores for most dimensions of the SF-36 tend to be equivalent.

Likewise, the assessment of quality of life can constitute a key parameter in cost-benefit studies and thus contribute to the optimization of resources in the field of rehabilitation treatment in patients with PD, as has already been done for other pathologies.[17]

CONCLUSIONS

Rehabilitation treatment in patients with Parkinson's disease has a positive influence on their quality of life, especially if it is initiated in the early stages of the disease.

REFERENCES

1. García-Medina A, Aguilar-Martínez M, Vera-Saavedra J, García-Espinosa E, Domínguez-Rodríguez M. Tratamiento fisioterapéutico grupal en la enfermedad de Parkinson. Physiotherapy group- treatment in Parkinson’s disease. Revista de Ciencias Médicas de Pinar del Río. 2002;6(2).

2. Manrique Moreno, A Modelación matemática de la enfermedad de Parkinson. Universidad de los Andes; 2023:22.

3. Duarte-Rivera L, Lorenzo-Díaz J, Díaz-Alfonso H, Linares-Río M, Cruz-Rosete L, Carrete-Friol Z. Calidad de vida en ancianos ingresados en el Servicio de Geriatría. Revista de Ciencias Médicas de Pinar del Río. 2022;26(6):5439.

4. Abreus Mora Jorge Luis, González Curbelo Vivian Bárbara, Bernal Valladares Ernesto Julio, Del Sol Santiago Fernando Jesús. Incremento de las capacidades físicas equilibrio y marcha en adultos mayores con Parkinson. Rev Podium. 2022;17(2):654-671.

5. Driggs-Vaillant S, Hernández-Calzadilla M, Yumar-Carralero Á. Protocolo para la medición del impacto de la especialidad de medicina física y rehabilitación. Revista Cubana de Medicina Física y Rehabilitación. 2023;15(1).

6. Jiménez Carpi, Sonia Viviané, Abreus Mora, Jorge Luis, GonzálezCurbelo, Vivian Bárbara, Bernal Valladares, Ernesto Julio, Del Sol Santiago, Fernando Jesús. Integración de componentes terapéuticos en la rehabilitación de pacientes con enfermedad de Párkinson. Rev. Finlay. 2020;10(2):179-190.

7. Saavedra Moreno Juan Sebastián, Millán Paula Andrea, Buriticá Henao Omar Fredy. Introducción, epidemiología y diagnóstico de la enfermedad de Parkinson. Acta Neurol Colomb. 2019;35(Suppl 1): 2-10.

8. Bueri JA. Epidemiología de la enfermedad de Parkinson. En: Alvear T. Enfermedad de Parkinson y trastornos relacionados. 2ª ed. Buenos Aires: Editorial Médica Panamericana; 2020: 161-172.

9. Mesa Valiente R, Pérez Pérez Y, Turro Mesa Lucía N, Turro Caró E. Conducta terapéutica en ancianos con enfermedad de Parkinson. MEDISAN. 2018; 22(7):614-629.

10. Verdecia Aguilar Merlin, Jacas Cabrera Angela, Milanés Domínguez Juliet, Frias Viltres Diana, Odoardo Aguilar Mabel. Caracterización de los síntomas no motores en pacientes con enfermedad de Parkinson. Multimed. 2022;26(5):e2471.

11. Rodríguez-García P. Diagnóstico y tratamiento médico de la enfermedad de Parkinson. Revista Cubana de Neurología y Neurocirugía. 2020;10(1).

12. Fernández S. Estrategias de movimiento compensadoras en el Párkinson, uso de pistas sensoriales y cognitivas. Valencia: efisioterapia; 2018. https://www.efisioterapia.net/articulos/estrategias-movimiento-compensadoras-el-párkinson-uso-pistas-sensoriales-y-cognitivas

13. Sagbay Coronel GE, Ortega Campoverde L. Propiedades psicométricas del índice de Barthel: revisión sistemática. CCD. 2023;6(1.1):105-19.

14. Cid-Ruzafa, J. y Damián-Moreno, J. Valoración de la discapacidad física: El Índice de Barthel. Revista Española de Salud Pública. 2019;(71):127-137.

15. García-Barrera AE, Horta-Roa LF, Bautista-Roa MA, Ibáñez-Pinilla EA, Cobo-Mejía EA. Calidad de vida y percepción de la salud en personas mayores con enfermedad crónica. Rev. salud. bosque. 2022;12(1):1-13.

16. Iraurgi I, Casas A, Celorio MJ, García-Serrano G, Hormaza M. Estado de salud y calidad de vida en con enfermedad de Parkinson de un programa de rehabilitación, 2018. http://www.psiquiatria.com/interpsiquis 2002/5590.

17. Miller KJ, Suárez-Iglesias D, Seijo-Martínez M, Ayán C. Physiotherapy for freezing of gait in Parkinson's disease: a systematic review and meta-analysis. Rev Neurol. 2020;70(5):161-170.

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CONTRIBUTION OF AUTHORSHIP

Conceptualization, research, methodology, formal analysis, project management, drafting of the original draft, drafting, revision and editing: GLHM.

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Conceptualization, methodology, supervision, writing, review and editing: ZGG.

All authors participate in the discussion of the results and have read, reviewed and approved the final text.