

# IMPACT OF AUTONOMIC DYSFUNCTION ON QUALITY OF LIFE IN PARKINSON'S DISEASE

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## ABSTRACT

The present study aims at investigating the impact of the most frequent autonomic symptoms in Parkinson's disease (PD) on patients' quality of life (QoL). Two hundred patients with Parkinson's disease and autonomic symptoms were included, aged 45 to 76 years, distributed evenly by sex and Hoehn-Yahr stage of severity from I to IV. The most commonly reported symptoms, negatively influencing quality of life, were constipation (53%), urinary incontinence (41,5%), nicturia and hyperhydrosis (23% each). Ninety-eight patients (49%) graded their autonomic symptoms as mildly affecting QoL, 70 (35%) as moderate, and 32 (16%) as severe. Our results support the literature data about the frequency of autonomic disorders in PD and the distribution of symptoms affecting QoL. We found a clear tendency of increase of the frequency and intensity of dysautonomias with disease severity. This trend supports the predominant opinion that autonomic disturbances in PD are mainly mild to moderate and become clinically significant usually in late stages. On the other hand, though mild to moderate in severity, they can appear even in the early stages of the disease. Widely utilized specific and generic questionnaires generally do not consider this subject, therefore the introduction of questions regarding the impact of autonomic symptoms in PD on quality of life is highly appropriate.

**Key words:** Parkinson's disease, autonomic nervous system, quality of life.

## INTRODUCTION

Parkinson's disease (PD) is a common neurodegenerative disorder that causes significant disability and decreased quality of life.

Dysautonomic symptoms are frequent in patients with PD. They appear most often in the late stages of the disease, but in some cases they can precede movement disorders, and even dominate the clinical picture (10). Autonomic symptoms contribute to the increase of disability in these patients and can lead to significant functional impairment and worsening of quality of life (QoL) (1,3).

Autonomic disorders, though mild to moderate, are described even in the early stages of the disease and in untreated patients. In spite of their clinical manifestation mainly in advanced disease, they are known to develop from the beginning of the pathological process in PD (8,10).

PDQ-39 is the most frequently applied specific instrument for quality of life in PD. It comprises 8 domains and 39 questions (9). Other questionnaires are also utilized, such as EQ-5D, SF-36, DDI, NHP, PDQL (1,3). Their common

disadvantage is the lack of special concerns regarding the impact of autonomic disorders in PD on QoL.

The aim of the study is to investigate the impact of the most frequent autonomic symptoms in PD on patients' QoL.

## MATERIAL AND METHODS

Two hundred patients with PD and autonomic symptoms fulfilled a specialized questionnaire, introduced by the authors (18) and rated the impact on their own QoL. One hundred males and 100 females were included, aged from 45 to 76 years, with disease duration of 1 to 12 years, distributed by 50 on each of the first 4 Hoehn-Yahr stages of severity.

PD was diagnosed according to UK PD Society Brain Bank Clinical Diagnostic Criteria. Subjects with concomitant diseases affecting the autonomic nervous system (ANS) were not included.

The questionnaire included 9 questions, concerning the impact of the most frequent dysautonomic symptoms on QoL, according to the literature and to our previous findings: sialorrhea, dysphagia, constipation, nicturia, urge incontinence, urinary incontinence, hyperhydrosis, seborrhea, orthostatic hypotension (18). The score was calculated as follows: no points were attributed to negative answers, while positive ones were rated according to 3 severity

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grades: mild (1 point), moderate (2 points) and severe (3 points). Higher total score meant more marked negative impact on QoL.

## RESULTS

All 200 patients reported at least one subjective dysautonomic symptom. The most common symptoms, negatively influencing QoL were constipation (53%), urinary incontinence (41,5%), nicturia and hyperhydrosis (23% each). The frequency of symptoms negatively influencing QoL is listed on table 1.

Table 1. Frequency of self-reported symptoms affecting QoL

Symptom	Patients	%
Sialorrhea	32	16
Dysphagia	30	15
Constipation	106	53
Nicturia	46	23
Urge incontinence/ frequency of urination	39	29,5
Urinary incontinence	83	41,5
Hyperhydrosis	46	23
Seborrhea	35	17,5
Orthostatic hypotension	25	12,5

The total sum exceeds 100% as some patients gave positive answer more than once. Ninety-eight patients (49%) graded their autonomic symptoms as mildly affecting QoL, 70 (35%) graded them as moderate, and 32 (16%) as severe. The grade of QoL impairment according to Hoehn-Yahr stages is demonstrated on table 2.

Table 2. Distribution of the grade of QoL impairment according to Hoehn-Yahr stages

Grade/Patients	H-Y I	H-Y II	H-Y III	H-Y IV	Sum
Mild	47	27	20	4	98
Moderate	3	18	18	31	70
Severe	0	5	12	15	32
Total	50	50	50	50	200

## DISCUSSION

Individuals who develop PD are confronted not only with the physical manifestations of the disorder but also with the psychosocial issues that impact quality of life. Autonomic symptoms may be severely disabling conditions which can

seriously interfere with QoL of affected subjects. Many authors have recently agreed that nonmotor features of PD are directly related to patients' QoL.

Our results support the literature data about the frequency of autonomic disorders in PD and the distribution of symptoms affecting QoL. Autonomic symptoms are described in 63-96% of PD patients, mainly involving the gastrointestinal (73%) and urinary tracts (68%). Cardiovascular system is affected in 58%, thermoregulation and secretory system in 52% (10). We found a clear tendency of increase of the frequency and intensity of dysautonomias with disease severity (according to Hoehn-Yahr stage) in our patients, and the distribution of symptoms affecting QoL follows the same tendency. Psychosocial aspects of PD present as subtle changes in the early stages but QoL indices worsen as the disease progresses. This trend is in line with the predominant opinion that autonomic disturbances in PD are mainly mild to moderate and usually become clinically significant in late stages (10).

Quality of life has been reported to be the primary concern of patients with PD and their family members. Limitations in functional ability and nonmotor symptoms severely impact QoL of a PD patient, and QoL deteriorates with disease progression. Inattentiveness to QoL and psychosocial issues by the clinician and medical team can adversely affect adherence to treatment, symptom management, and course of the disease. As there is no cure for PD, the most important goals of management are to preserve functionality and QoL.

The differences between PD and healthy population are more pronounced in younger patient groups. Quite a lot of patients are diagnosed under the age of 50 years and 5-10% under 40. Patients with better control of symptoms have higher requirements for autonomy and normal family, work and social activities. In these subjects the most prominent autonomic symptoms could contribute to functional impairment and dominate the negative impact on QoL.

## CONCLUSION

Autonomic dysfunction is frequent in PD and contributes considerably for the functional impairment and worsening of QoL, especially in the late stages. Although mild to moderate in severity, they can appear even in the early stages of the disease.

Widely utilized specific and generic questionnaires generally do not consider this subject, therefore the introduction of questions regarding the impact of autonomic symptoms in PD on quality of life is highly appropriate.

## REFERENCES

1. Damiano AM et al. A review of health-related QoL concepts and measures in Parkinson's disease. *Qual Life Res* 1999 May; **8**(3): 235- 43.
2. Damiano AM et al. Evaluation of a measurement strategy for Parkinson's disease: assessing patient

- health-related QoL. *Qual Life Res* 2000 Feb; **9**(1): 87- 100.
3. Findley LJ and The Global Parkinson's Disease Survey (GPDS) Steering Committee. Factors impacting on quality of life in Parkinson's disease: results from an international survey. *Mov Disord* 2002; **17** (1): 60- 67
  4. Low PA. Composite Autonomic Scoring Scale for laboratory quantification of generalized autonomic failure. *Mayo Clin Proc*, Aug 1993; **68**: 748- 52.
  5. Martinez- Martin P. An introduction to the concept of "quality of life in Parkinson's disease". *J Neurol* 1998; **245**, suppl 1: S 2- S 6.
  6. Martinez- Martin P. Measuring QoL in Parkinson's disease: is it really relevant? *Eur J Neurol* 2003 Sep; **10**, suppl 1: FW 2- 3: 205.
  7. Martinez- Martin P, Frades Payo B and The Gruppo Centro for Study of Movement Disorders. Quality of life in Parkinson's disease: validation study of the PDQ- 39 Spanish version. *J Neurol* 1998; **245**, suppl 1: S 34- S 38
  8. Muller T, Kuhn W, Przuntek H. Non-motor symptoms of Parkinson disease. Significant impact on quality of life-using possible treatments. *Fortschr Med*. 1997 May 20; **115**(14):45-8.
  9. Peto V, Jenkinson C, Fitzpatrick R. PDQ- 39: a review of the development, validation and application of a Parkinson's disease quality of life questionnaire and its associated measures. *J Neurol* 1998; **245**, suppl 1: S 10- S 14.
  10. Pfeiffer RF. Autonomic dysfunction in Parkinson's disease. *Neurology* 2002. Annual AAN meeting.
  11. Raudino F. Non motor off in Parkinson's disease. *Acta Neurol Scand* 2001 Nov; **104** (5): 312- 5.
  12. Siderowf A, Ravina B, Glick HA. Preference-based quality-of-life in patients with Parkinson's disease. *Neurology* Jul 9, 2002; **59**(1):
  13. Schrag A, Selai C, Jahanshani M , Quinn NP. The EQ- 5D- a generic quality of life measure is a useful instrument to measure quality of life in patients with Parkinson's disease. *JNNP* 200 Jul; **69** (1): 67- 73 [Medline]
  14. Schrag A, Jahanshani M, Quinn N. How does Parkinson's disease affect quality of life? A comparison with quality of life in the general population. *Mov Disord* 2000 Nov; **15** (6): 1112- 8.
  15. Schrag A, Jahanshani M, Quinn N. What contributes to quality of life in patients with Parkinson's disease? *JNNP* 2000 Sep; **69** (3): 308- 12.
  16. Shulman LM, Taback RL, Bean J, Weiner WJ. Comorbidity of nonmotor symptoms of Parkinson's disease. *Mov Disord* 2001 May; **16** (3): 507- 10.
  17. Wasielewski PG, Koller WC. Quality of life and Parkinson's disease: The CR FIRST Study. *J Neurol* 1998; **245**, suppl 1: S 28- S 30
  18. Ivanov, B., Deleva, N., Kaprelyan, A., Dimitrov, I. Questionnaire- based assessment of autonomic dysfunction in Parkinson's disease. *Annual Proceedings IMAB*, 2004, **10**, 1, 23-26.
  19. ECT in the differential diagnosis of parkinsonism in 75 patients. *Neurologia*. 2004 , **19**, 6, 292- 300.