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GENITOURINARY DYSFUNCTION PREVALENCE IN PARKINSON DISEASE PATIENTS

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ABSTRACT

The goal of this study was to estimate the prevalence of patient-reported genitourinary dysfunction symptoms in Parkinson's disease patients from the Southeastern Romania.

The study was performed on 86 patients with idiopathic Parkinson's disease from 5 Outpatients Clinics of Constanta, 56% males, mean age 70.6 years, mean disease duration 6.33 years. The patients have been assessed for the presence of genitourinary symptoms using the Scale for Outcomes in Parkinson's Disease for Autonomic Symptoms (SCOPA-AUT) as a self-administered questionnaire.

The vast majority of study population (98.8%) reported at least one genitourinary dysfunction. The most common urinary symptom was nocturia (95.3%, 95% CI 90.8-99.7), followed by pollakiuria (82.5%, 95% CI 74.4-90.5), difficulty passing urine and urge to urinate (each present in 76.7% of studied PD patients, 95% CI 67.4-85.3), incomplete bladder emptying (75.5%, 95% CI 66.4-84.5), urinary incontinence (67.4%, 95% CI 57.5-77.3). As frequency, most of the study subjects experienced genitourinary symptoms only "sometimes". None of the investigated PD patients affected by genitourinary symptoms used specific medication therapy.

Keywords: genitourinary symptoms, Parkinson disease, prevalence

Introduction

Although motor symptoms are a predominant feature of Parkinson's disease (PD), non-motor dysfunctions (like urinary symptoms) are frequently present in affected patients, significantly impacting their quality of life (1).

An altered dopamine-basal ganglia circuit, which normally suppresses the micturition reflex, seems to cause the most frequently reported urological dysfunction in PD: overactive bladder (reduced inhibition with resulting overactivity of the detrusor muscle, leading to an imperative necessity to urinate in the absence of adequate bladder filling) (2, 3). On the other hand, hypothalamic dysfunction is responsible for the genital symtoms (decreased libido and erection) in PD, mediated by altered dopamine-oxytocin pathways (3).

Literature reports that urinary storage symptoms are present in 57-83% of PD patients, whereas urinary voiding symptoms are found in 17-27% of these patients (1).

Automatic bladder control systems can be influenced by all dopaminergic substances (dopamine being reported as the essential neurotransmitter that inhibits bladder activity), but also by other medications such as anticholinergics, antidepressants, and beta-blockers (2).

The goal of this study was to estimate the prevalence of patient-reported genitourinary dysfunction symptoms in Parkinson's disease patients from the Southeastern Romania.

Material and methods

The study was performed on 86 patients with idiopathic Parkinson's disease from 5 Outpatients Clinics of Constanta, between 01 january 2017 and 31 may 2018.

Sex distribution of study population: 56% males and 44% females.

The patients were aged 51 to 89 years; mean age of study population = 70.6 years (95% CI 68.5-72.6); mean age in women =71.8 years (95% CI 69.6-73.9); mean age in men = 69.6 years (95% CI 67.6-71.5) (figure 1).

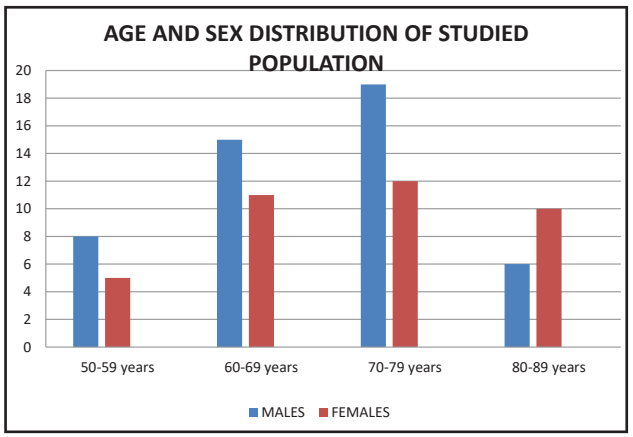

Figure 1: Age and sex distribution of studied population

Mean disease duration in the studied group was 6.33 years (95% CI 5.7-6.9), 6.25 years (95% CI 5.8-6.8) in women and 6.35 years (95% CI 5.7-7) in men (figure 2).

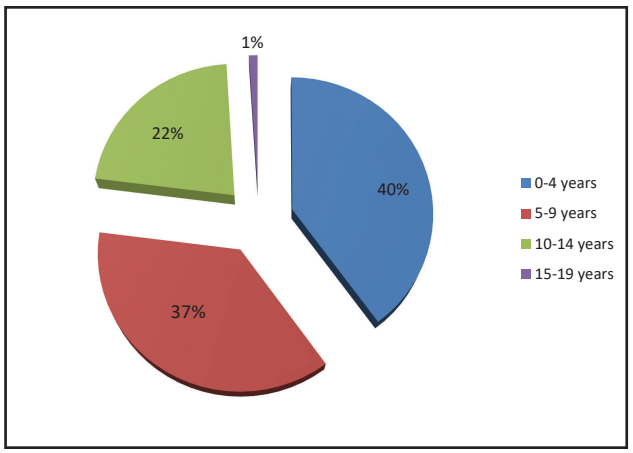

Figure 2: Disease duration

The diagnosis of idiopathic Parkinson's disease has been established according to the UK Parkinson's Disease Society Brain Bank Diagnostic Criteria (4), excluding the patients with atypical neurological features, suggestive for multiple system atrophy.

The patients have been assessed for the presence of genitourinary symptoms using the Scale for Outcomes in Parkinson's Disease for Autonomic Symptoms (SCOPA-AUT) (5) as a self-administered questionnaire.

Statistical analysis included the calculation of mean values and/or percentages, 95% confidence intervals and parametric tests for statistical relevance (Word Excel and MedCalc applications).

Results

Not surprisingly, 98.8% (95% CI 96.5-100%) of study population reported at least one genitourinary dysfunction. The most common urinary symptom was nocturia (95.3%, 95% CI 90.8-99.7), followed by pollakiuria (82.5%, 95% CI 74.4-90.5), difficulty passing urine and urge to urinate (each present in 76.7% of studied PD patients, 95% CI 67.4-85.3), incomplete bladder emptying (75.5%, 95% CI 66.4-84.5), urinary incontinence (67.4%, 95% CI 57.5-77.3) (figure 3).

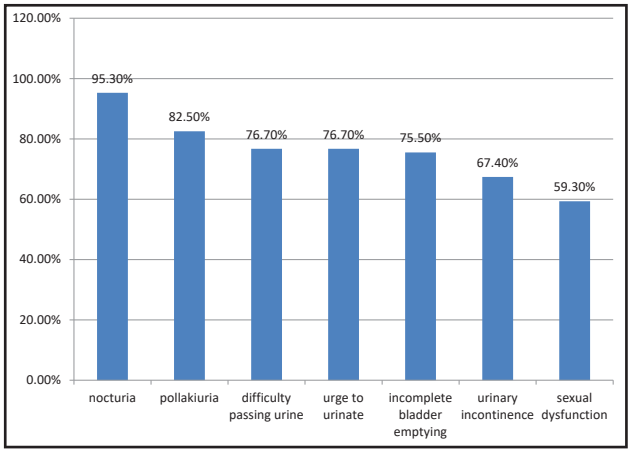

Figure 3: Prevalence of genitourinary symptoms in studied population.

Sexual symptoms have been identified in only 59% (95% CI 48.9-69.6) of studied subjects, predominantly in men (64.7%, 95% CI 51.5-77.8).

As frequency of apparition, most of the reported gu symptoms occured "sometimes" (pollakiuria, difficulty passing urine, urge to urinate, incomplete bladder emptying, urinary incontinence, sexual dysfunction), excepting nocturia (reported as occuring "regurarly" in 50% of the affected patients) (figure 4).

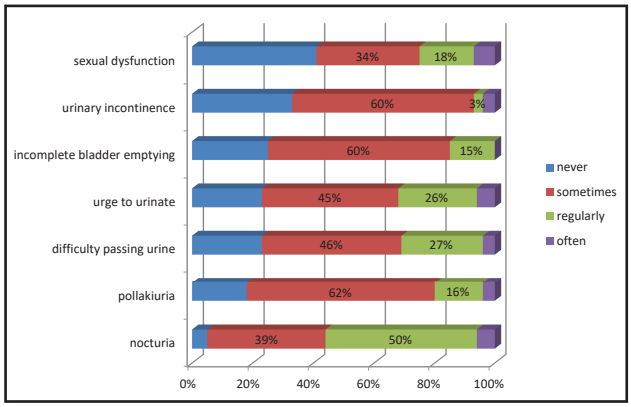

Figure 4: Frequency of genitourinary symptoms in studied population.

Discussions

An extensive search performed in 2012 by Yeo and colab (1), using the PubMed(®)/ EMBASE(®) databases revealed that previously published studies relying on non-motor rating scales have also found that nocturia is the most common genitourinary complaint (>60% of patients with PD), followed by urinary urgency (33-54% of patients) and pollakiuria (experienced by 16-36% of patients).

Another very recent study based on SCOPA-AUT Scale (84 italian PD patients) reported in 2018 a very similar prevalence of urinary symptoms: 93.8% of the enrolled subjects (versus 98.8% in our study) (6).

The causes for nocturia in PD are still debated: most often attributed to reduced nocturnal bladder capacity due to an overactive bladder, nocturia may also be the result of nocturnal polyuria, which is characterized by increased nocturnal urine production, more than 20% to 33% of the entire 24 hour volume (7, 8). Other symptoms of an overactive detrussor, as urinary urgency, increased daytime and night time frequency, and incontinence are reported in 33% to 54% of patients (3, 7).

Patients with nocturia reported more severe lower urinary tract symptoms that impacted quality of life and sleep (7).

A recent Taiwan nationwide population-based cohort study, showed that idiopathic PD is independently associated with an increased risk of an overactive bladder (OAB) and the cumulative incidence of OAB was 1.54% at the tenth year after PD diagnosis; the risk of OAB appeared to be age-dependent and increased in patients aged 65-74 years (9).

In Romania, two published dedicated studies reported comparable data. The first one, performed between 2007 and 2011 on 200 PD patients (in different Hoehn and Yahr stages of the disease) from the central region of Romania, showed a prevalence of only 36-47% (depending on the stage of the disease) for urinary dysfunction (nocturia being the most frequent symptom), and 36 - 65% for sexual dysfunction (10).

In 2012, the most common genitourinary symptoms, among 32 patients with incipient Parkinson's disease from the northern region of Romania (detected using the revised questionnaire NMS – PD QUEST) were, once again, nocturia (75%) and urge to urinate (65.6%) while sexual dysfunction ranked for only 37.5% (11).

Comparing these results to our study, a statistically significant difference was found only for global urinary dysfunction prevalence in the first cited study (statistically significant superior in our study, $p < 0.0001$) and nocturia prevalence in the second cited study (statistically significant superior in our study, $p = 0.0013$).

The complex pathophysiology of urinary and sexual dysfunction in PD is not responsive to levodopa, and left untreated, genitourinary symptoms can seriously impact on quality of life and sleep of affected patients (12).

Specific therapy for the management of the OAB are currently available, even only partially effective: antimuscarinic agents, botulinum toxin, sacral nerve modulation and percutaneous tibial nerve stimulation; incomplete bladder emptying can be relieved using α-adrenoceptor blockers or intermittent catheterization and nocturnal polyuria responds to desmopressin or late afternoon diuretic (13).

On the other hand, our study data showed

that none of the 85 PD patients affected by genitourinary symptoms used specific medication; only 28.2% (95% CI 18.6-37.8) of them have been treated for genitourinary comorbidities such as: benign prostatic hyperplasia, recurrent urinary tract infection or renal lithiasis. This alarming finding supports the previously reported poor recognition and treatment of non-motor symptoms in PD patients (14, 15, 16).

Conclusions

The overall prevalence of genitourinary symptoms in the studied group of PD patients was impressive but similar to other internationally published studies (98,8% versus 75% - 93.8%).

Nocturia ranks first (95.3%), followed by pollakiuria (82.5%), difficulty passing urine and urge to urinate (each present in 76.7% of studied PD patients)

As frequency, most of the study subjects experienced genitourinary symptoms only "sometimes" .

Compared to previously published studies from other regions of Romania, this study found a statistically significant superior prevalence of global urinary dysfunction (98% versus 47%, $p< 0.0001$) and of nocturia (95% versus 75%, $p=0.0013$).

None of the investigated PD patients affected by genitourinary symptoms used specific medication therapy.

On our knowledge, this is the first published study concerning the prevalence of genitourinary symptoms in parkinsonian patients performed in Southeastern Romania.

The continuation of the study, including more PD patients and more clinical parameters would increase the statistical significance of the results.

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References

1. Yeo L, Singh R, Gundeti M, Barua JM, Masood J. Urinary tract dysfunction in Parkinson's disease: a review. International urology and nephrology. 2012;44(2):415-24.
2. Jost WH. Urological problems in Parkinson's disease: clinical aspects. J Neural Transm (Vienna). 2013;120(4):587-91.
3. Sakakibara R, Uchiyama T, Yamanishi T, Kishi M. Genitourinary dysfunction in Parkinson's disease. Mov Disord. 2010;25(1):2-12.
4. Hughes AJ, Daniel SE, Kilford L, Lees AJ. Accuracy of clinical diagnosis of idiopathic Parkinson's disease: a clinico-pathological study of 100 cases. J7ournal of Neurology, Neurosurgery, and Psychiatry 1992;55:181-184.
5. Visser M, Marinus J, Stiggelbout AM, Van Hilten JJ. Assessment of autonomic dysfunction in Parkinson's disease: the SCOPA-AUT. Mov Disord 2004; 19:1306-12.
6. Valentino F, Bartolotta TV, Cosentino G, Mastrilli S, Arnao V, Aridon P, et al. Urological dysfunctions in patients with Parkinson's disease: clues from clinical and non-invasive urological assessment. BMC Neurol. 2018;18(1):148.
7. Smith M, Seth J, Batla A et al. Nocturia in Patients With Parkinson's Disease. Mov Disord Clin Pract. 2016 Mar-Apr; 3(2): 168–172.
8. Weiss JP, Blaivas JG, Bliwise DL, et al. The evaluation and treatment of nocturia: a consensus statement. BJU Int 2011;108:6–21.
9. Lin FY, Yang YC, Lin CL, Lee LJ. Increased risk of overactive bladder in patients with idiopathic Parkinson's disease: Insight from a nationwide population-based cohort study. PLoS One. 2018;13(3):e0193783.
10. Cuibus L, Pereanu M. Tulburări vegetative în boala Parkinson. ActaMedicaTransilvana. 2012; vol II, nr. 2, 2012, pag. 12-16.
11. Tohănean N, Perju-Dumbravă L. Evaluarea simptomelor nonmotorii la pacienții cu boală Parkinson precoce. Clujul Medical. 2012;

Vol. 85 - nr. 2, 212-217.
12. Brucker BM, Kalra S. Parkinson's Disease and Its Effect on the Lower Urinary Tract: Evaluation of Complications and Treatment Strategies. Urol Clin North Am. 2017;44(3):415-28.
13. Batla A, Phe V, De Min L, Panicker JN. Nocturia in Parkinson's Disease: Why Does It Occur and How to Manage? Mov Disord Clin Pract. 2016;3(5):443-51.
14. Palma JA, Kaufmann H. Treatment of Autonomic Dysfunction in Parkinson Disease and Other Synucleinopathies. Movement Disorders. 2018; Vol. 33, No. 3, 372-390.
15. Soh SE, Morris ME, McGinley JL. Determinants of health-related quality of life in Parkinson's disease: a systematic review. Parkinsonism and Related Disorders. 2011; vol. 17, no. 1, 1–9.
16. Todorova A, Jenner P, Chaudhuri KJ. Non-motor parkinson's: integral to motor parkinson's, yet often neglected. Practical Neurology. 2014; vol. 14, no. 5, 310–322.