

VOIDING DYSFUNCTION IN PATIENTS WITH PARKINSON'S DISEASE: ASSOCIATION BETWEEN CLINICAL AND URODYNAMIC PARAMETERS.

Hypothesis / aims of study

Voiding dysfunction often occurs in patients with Parkinson's disease. Several factors account for the high prevalence of lower urinary tract symptoms (LUTS) among patients with PD, including vesicosphincteric abnormalities secondary to the neurological disease, urinary tract comorbidities and degenerative alterations in the urinary tract associated with aging. Thus, it is difficult to establish the role played by each one of these factors in the genesis of LUTS. In this study, we assessed the prevalence and characteristics of lower urinary tract symptoms in patients with Parkinson's disease and examined their association with those clinical parameters that could have an impact on voiding dysfunction.

Study design, materials and methods

We prospectively evaluated 110 patients, of which 84 were men (76.4%) and 26 were women (23.6%), with a mean age of 61.8 ± 9.6 years. The inclusion criteria were: idiopathic Parkinson's disease and age > 40 years. Patients with other neurological diseases and history of pelvic surgery and radiotherapy were excluded. Mean duration of the disease was 12.3 ± 7.2 years. The neurological impairment was assessed by the Hoehn-Yahr scale (HY) and the Unified Parkinson Disease Rating Scale (UPDRS). Lower urinary tract symptoms were assessed by the International Continence Society male questionnaire, which included a question about quality of life related to LUTS. Those patients who wanted to be treated for their voiding dysfunction were considered as symptomatic. They underwent urine analysis, serum creatinine measurement, PSA, urinary tract imaging and urodynamic study. We examined the association between voiding dysfunction and age, gender, disease duration, degree of neurological impairment, impact on quality of life, and urodynamic findings.

Results

The neurological assessment showed a mean HY score of 3.0 ± 0.8 and a mean UPDRS score of 70.0 ± 31.1 . Mean LUTS score was 11.9 ± 9.3 , and the most prevalent symptoms were nocturia in 89 (80.9%) patients, urgency in 40 (36.3%), and frequency in 39 (35.4%). Mean duration of LUTS was 3.8 ± 3.4 years. The prevalence of voiding dysfunction increased significantly with the degree of neurological impairment, but not with patient's age or disease duration. Quality of life was affected by the severity of the voiding dysfunction, and the symptoms with the worst impact on quality of life were frequency and nocturia. Sixty-three patients (57.2%) were symptomatic and 54 (43 men and 11 women) concluded the evaluation. Symptomatic patients had more severe neurological dysfunction (mean HY 3.2 ± 0.8 vs 2.8 ± 0.9 for asymptomatic patients; $p=0.035$). Symptomatic and asymptomatic patients did not differ as to age, disease duration and LUTS. Mean prostate volume was 30.3 ± 10.7 cc. The urodynamic findings were bladder outlet obstruction in 38 (70.3%) patients, detrusor overactivity in 27 (50.0%), and detrusor underactivity in 6 (11.1%). The degree of neurological impairment was not associated with any urodynamic pattern. There were no differences with regard to age, PD duration, PD severity and LUTS duration in the comparison between male and female patients. Moreover, LUTS severity and the impact on QoL were equal for both genders. The only difference observed was that emptying symptoms were more intense among men. Even the urodynamic findings were comparable between men and women..

Interpretation of results

The influence on the urinary tract of factors such as patient's age, degree of neurological impairment and Parkinson's disease duration is very controversial. Probably, this is due to the interdependence between these parameters. As PD is a progressive condition, there is a correlation between neurological disease severity and PD duration. Likewise, older patients tend to have longer PD duration. Our findings stress the importance of PD severity as the only individual factor that can predict the development of LUTS. We tried to correlate the urodynamic findings of infravesical obstruction and detrusor overactivity with the degree of neurological impairment in PD patients. The lack of correlation between these parameters suggests that the urodynamic abnormalities seen in parkinsonian patients do not depend on the neurological disease severity, and that the urodynamic examination is critical for the identification of the very nature of the voiding dysfunction in these patients.

Concluding message

Most patients with Parkinson's disease have significant voiding dysfunction, and the severity of the neurological disease is the only independent predictive factor for the occurrence of voiding dysfunction. Bladder outlet obstruction and detrusor overactivity are the most common urodynamic findings, although not associated with the degree of neurological impairment. Men and women are similarly affected by voiding symptoms and have comparable urodynamic findings.

References

FUNDING: None

HUMAN SUBJECTS: This study was approved by the Ethics Committee of the Hospital das Clinicas of the University of Sao Paulo and followed the Declaration of Helsinki Informed consent was obtained from the patients.

