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## VOIDING FUNCTION IS CORRELATED WITH MOTOR SEVERITY IN PATIENTS WITH PARKINSON'S DISEASE?

### Hypothesis / aims of study

Patients with Parkinson disease (PD) have not only motor impairment but also lower urinary tract dysfunction. Previous reports showed that the prevalence of lower urinary tract symptoms in PD patients was 24 to 96%, which was higher than that in healthy population. Among lower urinary tract symptoms, storage symptoms such as urinary urgency, frequency and urge incontinence are the most common and well known. Also in the findings of urodynamic study (UDS) in PD patients, detrusor overactivity (DO) has been common and well known as the cause of storage symptoms. However, the detail of voiding symptom is less clear and UDS findings during voiding and those as the cause of voiding symptom have remained unclear. Recently, pressure-flow study has been developed, which can evaluate both bladder contractility and outlet obstruction during voiding in usual urodynamic studies. No large studies using urodynamic-pressure-flow study upon lower urinary tract dysfunction in PD patients has been available. Therefore, we present a detailed data from an urodynamic-pressure-flow measurement in PD patients, with particular attention to the interrelation between the questionnaire items, the urodynamic parameters, and the clinical characteristics such as gender, age, disease duration and disease severity.

### Study design, materials and methods

114 consecutive patients with PD were recruited except 28 PD patients with other complications known to influence lower urinary tract function, 21 PD patients without washing out the medication for parkinsonism and/or urinary problems, and 10 other parkinsonian disease re-diagnosed after. For the studied patients, the mean age was 65.9 years (SD: 7.86), the mean disease duration 67.1 months (73.6), the mean medication duration 80.4 months (79.2), the mean Hoehn and Yahr motor scale (H&Y) 2.93 (1.32), and the mean dopamine equivalent dose 490mg (264). The studied patients consisted in 48 de novo patients, 30 patients without motor fluctuations, 36 patients with motor fluctuations.

### Results

Lower urinary tract symptoms were found in 86.0% patients. We found abnormal UDS findings in 91.2%. During storage, detrusor overactivity (65.8%) and increased bladder sensation (13.2%) were shown. During voiding, 55.3% showed some detrusor underactivity, 18.4% showed bladder outlet obstruction, resulting in decrease in maximum flow rate (38.6%) and presence of 50-100 ml post-void residual (PVR) (13.2%). In multivariate analyses, urinary urgency, urge incontinence and hesitancy correlated with disease severity. Detrusor underactivity, decreased Qmax and PVR correlated with disease severity, while detrusor overactivity and bladder outlet obstruction with gender. Night-time frequency, urinary urgency or urge incontinence impaired quality of life (QOL) in cooperation with disease severity, while prolongation or feeling of incomplete affected QOL by itself.

### Interpretation of results

In PD patients, detrusor underactivity and related parameters were correlated with motor severity and prolongation or feeling of incomplete as a voiding symptom affected QOL.

### Concluding message

Lower urinary tract dysfunctions were common in PD patients not only during storage but also voiding. Those dysfunctions are mainly due to detrusor overactivity during storage phase and detrusor underactivity during voiding phase. Voiding disorder correlated with motor / disease severity, and lower urinary tract dysfunctions impaired QOL along with motor dysfunction. Thus, clinicians should monitor not only storage disorder but also voiding disorder in patients with PD, particularly for cases with severe motor dysfunction.

### Disclosures

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