

## LOWER URINARY TRACT DYSFUNCTIONS IN PATIENTS WITH PARKINSON'S DISEASE. - INFLUENCE OF AGE, GENDER, DISEASE DURATION, MOTOR SEVERITY AND MEDICATION

### Hypothesis / aims of study

Lower urinary tract symptoms (LUTS) and dysfunction (LUTD) were well known to occur in patients with Parkinson disease (PD), however, prevalence, severity and distress of LUTS/LUTD are controversial. And influence of some conditions in PD patients such as age, gender, disease duration, motor severity and medication on LUTS/LUTD, and mechanism of LUTS/LUTD were also not well estimated previously. We evaluated LUTS/LUTD, and analyzed correlation between various conditions in PD patients and LUTS/LUTD.

### Study design, materials and methods

141 consecutive PD patients were screened by simple questionnaire about LUTS and 58 patients (32 male and 26 female) of them accepted to be evaluated by the detail questionnaire and urodynamic study (UDS) including pressure-flow study (PFS).

### Results

By simple questionnaire, 86% of 141 PD patients had LUTS. Similarly, 82.8 % of 58 PD patients had LUTS, which was mainly storage symptom such as urinary frequency and urgency and mainly voiding symptom such as intermittency and residual sensation. Urge incontinence and urinary retention were shown in PD patients (34.5%, 17.2%). However, distress to LUTS was shown in 62.1% of PD patients. 98.3% of PD patients had LUTD, which was storage dysfunction mainly due to detrusor overactivity (DO) (75.9%) and voiding dysfunction mainly due to detrusor weakness (53.4%). And 37.9% of PD patients had both dysfunctions. However, post void residual was small in all patients (mean 23.9ml).

There was no difference in LUTS regarding gender. Some storage symptoms including urinary urgency ( $p=0.011$ ,  $R=0.01$ ) and night time urinary frequency ( $p=0.028$ ,  $R=0.01$ ) correlated with disease duration but not age and motor severity. In LUTD, DO and urethral obstruction without detrusor-external sphincter dyssynergia were significantly common in male ( $p<0.05$ ). Detrusor weakness as voiding dysfunction correlated with motor severity, but no parameters correlated with age and disease duration.

Distress to LUTS correlated with daytime urinary frequency ( $p=0.032$ ,  $R=0.10$ ), intermittency ( $p=0.044$ ,  $R=0.25$ ) and decrease in bladder volume at first sensation of bladder filling ( $p=0.020$ ,  $R=0.35$ ). Distress to LUTS did not correlated with any conditions of PD patients.

LUTS/LUTD were common even in PD patients with de novo, short disease duration and mild motor severity (72.2%/100%, 41.7%/100 %, 73.9%/100%), and which slightly improved in treated PD patients with no motor fluctuation and tended to be exacerbated in PD patients with long disease duration, severe motor severity and severe motor fluctuation.

### Interpretation of results

In PD patients, even in de novo, early and mild PD patients, LUTS/LUTD were very common. The main mechanisms were detrusor overactivity (DO) as storage dysfunction and detrusor weakness as voiding dysfunction, which was so called detrusor hyperactivity with impaired contractile function (DHIC). Some storage symptoms correlated with disease duration, and detrusor weakness correlated with motor severity. Cause of the distress to LUTS/LUTD was mainly storage dysfunction. And stable dopaminergic treatment was slightly useful for LUTS/LUTD.

### Concluding message

In PD patients, even in de novo, early and mild PD patients, not only storage but also voiding symptom/dysfunction may commonly occur, and we must pay attention to these symptom/dysfunctions. Some conditions in patients with PD slightly affected prevalence and severity of LUTS/LUTD. The voiding dysfunction may correlate nigrostriatal degeneration as principal lesion of PD rather than the storage dysfunction. And stable condition in PD patients may be useful for LUTS/LUTD.

### Disclosures

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