

## LOWER URINARY TRACT DYSFUNCTION OF THE PATIENTS WITH PARKINSON DISEASE: CHANGES RELATED TO DISEASE SEVERITY

### Hypothesis / aims of study

Patients with Parkinson Disease (PD) often develop lower urinary tract dysfunction (LUTD). However, there is few report to evaluate LUTD of the patients with PD, and to evaluate relation between the LUTD and the disease severity. We evaluated LUTD by pressure flow study, which were referred to the disease severity.

### Study design, materials and methods

We performed a urinary questionnaire and urodynamic studies in 49 patients with PD. The patients were divided into 3 groups: 12 untreated patients (untreated group), 17 treated patients with stable condition (stable group), and 20 treated patients with wearing-off phenomenon (wearing-off group). All medication was withheld at least 12 hours before studies to reduce drug effect as much as possible. The urodynamic studies were done at about 9:00 A.M. in the morning. Patients with prostate hypertrophy, dementia, and major depression were excluded.

### Results

In untreated group (n=12), 9 patients had storage symptoms and 3 patients had voiding symptoms (table 1). Urgency incontinence was noted in 1. During the bladder filling phase, detrusor overactivity was shown in 9 patients, increase bladder sensation without detrusor overactivity (sensory urgency) in 1. Nobody had low compliance bladder. During the voiding phase, post void residual (30-100 ml) was shown in 4 patients, detrusor underactivity in 6, and urethral sphincter obstruction in 2. Nobody had detrusor-sphincter dyssynergia.

In stable group (n=17), 16 patients had storage symptoms and 3 patients had voiding symptoms. Urgency incontinence was noted in 3. During the bladder filling phase, detrusor overactivity was shown in 14 patients, increase bladder sensation (urgency) without detrusor overactivity in 2, and detrusor overactivity incontinence in 3. Nobody had low compliance bladder. During the voiding phase, post void residual (30-100 ml) was shown in 3 patients, detrusor underactivity in 6, and urethral sphincter obstruction in 5. Nobody had detrusor-sphincter dyssynergia.

In wearing-off group (n=20), 20 patients had storage symptoms and 5 patients had voiding symptoms. Urgency incontinence was noted in 13. During the bladder filling phase, detrusor overactivity was shown in 17 patients, increase bladder sensation (urgency) without detrusor overactivity in 3, and detrusor overactivity incontinence in 13. Nobody had low compliance bladder. During the voiding phase, post void residual (30-100 ml) was shown in 6 patients, detrusor underactivity in 13, and urethral sphincter obstruction in 1. Nobody had detrusor-sphincter dyssynergia.

### Concluding message

Untreated PD patients had a high incidence of LUTD, and the main feature was storage symptom due to detrusor overactivity. The storage symptom and detrusor overactivity increased with the disease severity. Weak detrusor and urethral sphincter obstruction (not DSD, probable internal sphincter obstruction?) are another features of LUTD in the patients, though the incidence of subjective symptom was low. However, none had post void residual over 100 ml, which was in contrast to large residuals in patients with multiple system atrophy, lumbar spondylosis, or diabetic cystopathy.

	untreated n=12		treated stable condition n=17		treated wearing-off n=20	
		(%)		(%)		(%)
LUT symptoms	9	75	16	94	20	100
storage symptoms	9	75	16	94	20	100
urge urinary incontinence	1	8	3	18	13	65
voiding symptoms	3	25	3	18	5	25
Urodynamic findings						
detrusor overactivity	9	75	14	82	17	85
sensory urgency	1	8	2	12	3	15
poor flow	9	75	11	65	13	65
underactive detrusor	6	50	6	35	13	65
obstructive pattern	2	17	5	29	1	5