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DIAGNOSTIC CHARACTER OF LOWER URINARY TRACT DYSFUNCTION IN DE NOVO PATIENTS WITH PARKINSON'S DISEASE

Hypothesis / aims of study

Lower urinary tract dysfunction was reported to be common in Parkinson disease (PD). However, most previous studies have been based on the patients receiving anti-parkinsonian drugs and the patients with various severity and disease duration. And little is known regarding the lower urinary tract dysfunction in de novo patients with PD. To know the character of lower urinary tract dysfunction in early and de novo patients with PD is helpful to discriminate PD from the other related parkinsonian syndrome and PD with the other complication as a differential diagnostic tool and important to estimate the pathophysiology of PD itself and autonomic failure / Lower urinary tract dysfunction in PD. In the past, there was no report to show lower urinary tract dysfunction in a cohort of of early and de novo patients with PD. Therefore we evaluated the character of lower urinary tract dysfunction in a cohort of early and de novo patients with PD.

Study design, materials and methods

Fifty consecutive early and de novo patients with PD were recruited except 11 patients with PD and other conditions including cognitive impairment, major depression/psychiatric disorder, other diseases known to influence urinary function such as previous stroke, diabetes mellitus, spondylosis and prostate hypertrophy and the medications for urinary symptoms. PD was diagnosed by clinical examination, MRI, pharmacological response for anti-parkinsonian drugs, following the reported criteria (Larsen et al., 1994) and cardiac (123) I-metaiodobenzylguanidine (MIBG) uptake and washing rate. For the studied patients, the mean age was 66.8 years (SD: 1.2), the mean disease duration 5.3 years (1.2), and mean Hoehn and Yahr motor scale (H&Y) 2.9 (1.2).

We performed urinary questionnaire and urodynamic studies including concentric sphincter needle EMG (UDS).

Results

Thirty two (64.0%) of the 50 early and de novo patients with PD had lower urinary tract symptom. Storage symptoms were significantly more common than voiding symptoms (62.0%, 28.0%, respectively) ($P < 0.01$). In the PD patients with lower urinary tract symptom, the patients with storage symptoms were 96.9%, with 40.6% having both storage and voiding symptoms, although the patients with only voiding symptoms were a few (3.1%). Urinary frequency (daytime: 48.0%, nighttime: 40.0%) and urinary urgency (36.0%) were common as storage symptoms. And 12.0% patients had urge incontinence, and 6.0% (15.0% in female) stress incontinence. As voiding symptoms, hesitancy (8.0%), prolongation (12.0%) and feeling of incomplete emptying (12.0%) were also found. No patient had urinary retention.

In the results of the UDS, 82.0% of the patients had abnormal findings, including storage and voiding dysfunctions (70.0%, 64.0%, respectively). In the patients with abnormal findings, the patients with storage dysfunctions were 82.9%, with 58.5% having both storage and voiding symptoms, although the patients with only voiding symptoms were some (17.1%). In storage dysfunctions, detrusor overactivity (DO) was the most common (58.0%), but increased bladder sensation without DO was also found in 12.0%. These DO and increased bladder sensation resulted in decreased bladder volume at first sensation of bladder filling (FSV) and/or maximum bladder capacity (BC) (24.0%, 38.0%, respectively). In voiding dysfunctions, detrusor weakness was the most common (53.4%). On the other hand, 22.9% had bladder outlet obstruction (BOO), with 8.0% having detrusor-external sphincter dyssynergia (DSD), resulting in decreased Qmax in 26.7% and over 30 ml PVR in 10.0%. In the concentric sphincter needle EMG, none had abnormal anal sphincter motor unit potential (MUP). Thirteen patients out of 16 with H&Y 1 (81%), 18 out of 22 with H&Y 2 (81%), and 10 out of 12 with H&Y 3 (83%) had urinary dysfunction. Tremor / mixed type have nighttime frequency and urinary urgency more frequently than akinesia type.

Interpretation of results

Some characteristic lower urinary tract symptom, mainly urinary frequency and urgency, and some characteristic abnormal UDS findings, mainly detrusor overactivity (DO) with subclinical detrusor weakness and without abnormal anal sphincter MUP, commonly occurred even in early and de novo patients with PD.

Concluding message

Diagnostic character of lower urinary tract dysfunction was shown in early and de novo patients with PD. In case with severe voiding dysfunction and/or abnormal anal sphincter MUP, other parkinsonian syndrome or complications should be considered.

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Is this a Randomised Controlled Trial (RCT)?	**No**
What were the subjects in the study?	**HUMAN**

Was this study approved by an ethics committee?	**Yes**
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Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**