

Tateno F<sup>1</sup>, Sakakibara R<sup>1</sup>, Tateno H<sup>1</sup>, Kishi M<sup>1</sup>, Tsuyusaki Y<sup>1</sup>, Aiba Y<sup>1</sup>, Yamamoto T<sup>2</sup>, Yamanishi T<sup>3</sup>, Uchiyama T<sup>3</sup>, Awa Y<sup>4</sup>, Shibata C<sup>3</sup>, Yano M<sup>5</sup>

1. Neurology, Internal Medicine, Sakura Medical Center, Toho University, 2. Neurology, Chiba University, 3. Continence Center, Dokkyo Medical College, 4. Urology, Chiba University, 5. Urology, Sakura Medical Center, Toho University

## LOWER URINARY TRACT DYSFUNCTION IN PROGRESSIVE SUPRANUCLEAR PALSY

### Hypothesis / aims of study

To investigate lower urinary tract (LUT) function in progressive supranuclear palsy (PSP) 1.

### Study design, materials and methods

We had 21 patients with PSP who underwent a systematized lower urinary tract symptom (LUTS) questionnaire and a urodynamics, which were performed irrespective of the presence of LUTS. The diagnosis of PSP was made according to published criteria. In addition, in order to augment diagnostic accuracy, we performed brain magnetic resonance imaging (MRI), and all patients exhibited the humming-bird sign (Figure 1) 2. The patients included 17 men and 4 women; mean age 73 years. All patients had gait difficulty with the mean Hoehn Yahr stage 3. Cognitive function was assessed in all patients. Urodynamics/sphincter electromyography (EMG) was performed according to the International Continence Society methods. Before participating in the study, informed consent was obtained from all subjects and their families. This study was approved in local Ethics Committee.

### Results

A questionnaire revealed that 90% of PSP patients had LUTS; comprising night-time urinary frequency in 74%, daytime urinary frequency in 53%, and urgency urinary incontinence (more than once a week) in 53%. A urodynamic study revealed a mean volume at the first sensation 139 ml (100 < normal < 300 ml), bladder capacity 235 ml (200 < normal < 600 ml), detrusor overactivity in 90%, and post-void residual > 100 ml in 10%. Sphincter electromyography (EMG) revealed neurogenic change in 38%.

### Interpretation of results

Present study results of PSP can be compared with those of Parkinson's disease (PD). In total, PSP has more common and severe LUT dysfunction than PD, presumably reflecting PSP's diffuse brain pathology in the basal ganglia and the frontal cortex, both of which are relevant to the higher control of micturition. In contrast, the reason of high percentage abnormality in the sphincter EMG in PSP remains unclear. However, in light of the present study results, pathology study of sacral Onuf's nucleus in PSP is warranted. This feature raises caution to distinguish PSP from parkinsonian-type multiple system atrophy (MSA-P) that has common sphincter EMG abnormality.

### Concluding message

PSP has common and severe LUT dysfunction as indicated by urinary incontinence and detrusor overactivity. Our study results shed light to practical care of elderly patients with PSP, and also clinical differential diagnosis of parkinsonian gait disorder and dementia.



Figure 1 The humming-bird sign on brain MRI 2.

### References

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### Disclosures

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