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## LOWER URINARY TRACT FUNCTION IN DEMENTIA WITH LEWY BODIES: A LARGER STUDY

### Hypothesis / aims of study

To investigate lower urinary tract (LUT) function in dementia with Lewy bodies (DLB).

### Study design, materials and methods

We had 37 patients with DLB 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 DLB was made according to published criteria. In addition, in order to augment diagnostic accuracy, we performed metaiodo-benzilguanidine (MIBG) myocardial scintigraphy. All 37 patients showed low tracer accumulation indicating cardiac sympathetic denervation (Figure 1). The patients included 28 men and 9 women; mean age 76.2 (61-86) years; mean disease duration 3.2 (0.2-17) years. All patients had gait difficulty with the mean Hoehn Yahr stage 2.7. Cognitive function was assessed in all patients; and the mean Mini Mental State Examination (MMSE) score was 20.9 (less than 24 indicates cognitive decline). 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

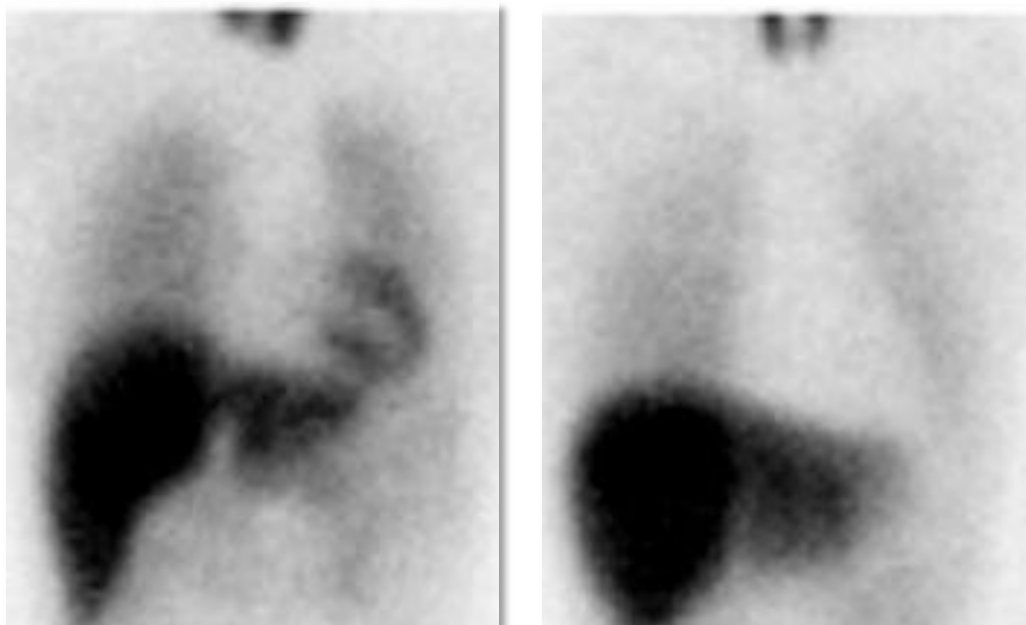
A questionnaire revealed that all patients had LUTS; comprising night-time urinary frequency in 32 (91%), urinary incontinence in 23 (71%), daytime urinary frequency in 13 (42%) and urinary retention (post-void residual > 100 ml) in 3 (8.6%). A urodynamic study revealed a mean volume at the first sensation 94.7 ml (28-198 ml; 100< normal <300 ml); bladder capacity 172.8 ml (34-403 ml, 200< normal <600 ml); and detrusor overactivity in 32 (88.9%). Sphincter electromyography (EMG) revealed neurogenic change (Figure 2) in 10 of the 21 patients (47.7%) on whom the test was performed.

### Interpretation of results

Since DLB and Parkinson's disease (PD) share the same Lewy body pathology, we compare the present study results with those in PD in our previous study. As compared with PD, DLB has more common and severe lower urinary tract dysfunction (urinary incontinence and detrusor overactivity). This presumably reflects DLB'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 remains unclear. However, in light of the present study results, pathology study of sacral Onuf's nucleus in DLB is warranted. This feature raises caution to distinguish DLB from parkinsonian-type multiple system atrophy that has common sphincter EMG abnormality.

### Concluding message

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



A

B

Figure 1 Metaiodobenzilguanidine (MIBG) myocardial scintigraphy in a normal case and a case of dementia with Lewy bodies (DLB).

A: a normal case, B: a case of DLB. Note that normal cardiac ventricular images are disappeared in this patient, indicating sympathetic denervation that is a biomarker for the diagnosis of DLB and Parkinson's disease.

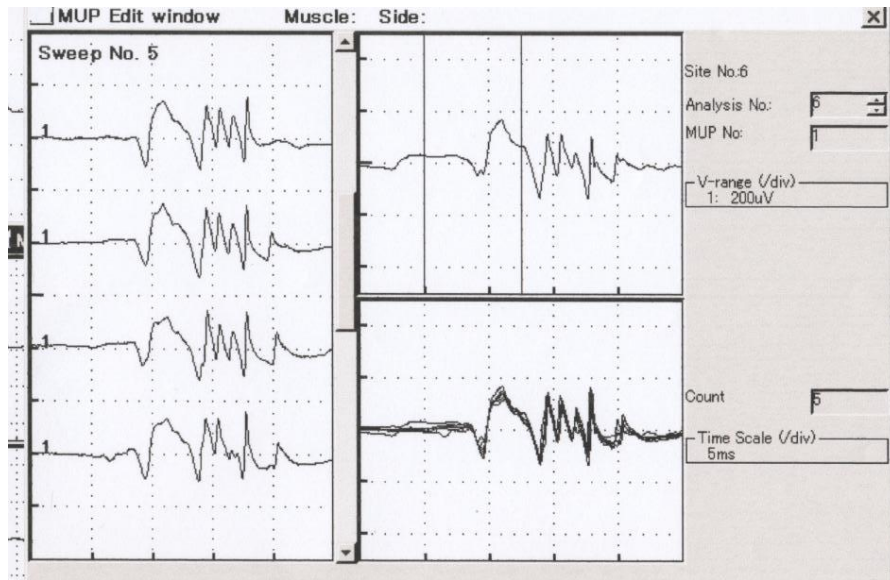


Figure 2 Sphincter electromyography (EMG) abnormality in a case of DLB.

Long duration neurogenic changes were observed.

Disclosures

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