

THE RELATIONSHIP BETWEEN LOWER URINARY TRACT(LUTS) FUNCTION AND 123I-IOFLUPANE SCINTIGRAPHY(DAT SCAN) IN PARKINSON'S DISEASE(PD).

Hypothesis / aims of study

To investigate the relationship between lower urinary tract(LUTS) function and 123I-ioflupane scintigraphy in Parkinson's disease.

Study design, materials and methods

We had 26 patients with PD 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 PD was made according to published criteria. In addition, in order to augment diagnostic accuracy, we performed 123I-ioflupane scintigraphy. The patients included 14 men and 12 women; mean age 66.7 (47-79) years; mean disease duration 2.7 (0.4-10) years. All patients had gait difficulty with the mean Hoehn Yahr stage 2.3. Cognitive function was assessed in all patients; and the mean Mini Mental State Examination (MMSE) score was 26.1 (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 12 (46.2%), urinary incontinence in 7 (27%), daytime urinary frequency in 19 (73.1%) and urinary retention (post-void residual > 100 ml) in 3 (11.5%). A urodynamic study revealed a mean volume at the first sensation 104 ml (42-306 ml; 100< normal <300 ml); bladder capacity 243 ml (63-414 ml, 200< normal <600 ml); and detrusor overactivity in 10 (38.5%). Sphincter electromyography (EMG) revealed neurogenic change (Figure 2) in 2 of the 15 patients (13.3%) on whom the test was performed. *DAT SBR (specific binding ratio) average had significant correlation with bladder capacity (Spearman's correlation coefficients $P<0.05$).*

Interpretation of results

We compare the present study results with those in PD in our previous study. As compared with PD has mild lower urinary tract dysfunction (urinary incontinence and detrusor overactivity). This presumably reflects short disease duration to PD. But DAT SBR (specific binding ratio) average had significant correlation with bladder capacity. Noninvasive neuroimaging of PD patients by PET/SPECT has been performed to correlate the images with postmortem nigral cell counts, to measure a progression of degenerating nigrostriatal cells in vivo, and to correlate reduced nigrostriatal dopaminergic function in PD. This result reflects PD's brain pathology in striatum, which are relevant to the higher control of storage in micturition.

Concluding message

PD has common lower urinary tract dysfunction as indicated by urinary incontinence and detrusor overactivity. DAT scan and bladder capacity of patients with Parkinson's disease is associated with, even striatum in clinical cases it is a major responsibility lesion was suggested.

Disclosures

Funding: no **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** ethics committee of Sakura Medical Center, Toho University **Helsinki:** Yes **Informed Consent:** Yes