**92**

Tateno F[1], Sakakibara R[1], Aiba Y[1], Tsuyusaki Y[1], Kishi M[1], Ri H[2], Takahashi O[3], Nakamura H[3], Sugiyama M[3]
***1.*** *Neurology Division, Department of Internal Medicine, Sakura Medical Center, Toho University,* ***2.*** *Urology Division, Department of Internal Medicine, Sakura Medical Center, Toho University,* ***3.*** *Clinical Physiology Unit, Toho University, Sakura, Japan.*

# THE RELATIONSHIP BETWEEN LOWER URINARY TRACTFUNCTION AND 123I-IOFLUPANE SCINTIGRAPHYIN PARKINSON'S DISEASE.

Hypothesis / aims of study

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

Study design, materials and methods

We had 49 patients with Parkinson's disease (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. We evaluated all patients with PD using single-photon emission computerized tomography (SPECT) imaging of the dopamine transporter with [ 123I]- ioflupane. (Figure 1). The patients included 25 men and 24 women; mean age 70 (47-79) years; mean disease duration 2.7 (0.4-10) years. All patients had gait difficulty with the mean Hoehn Yahr stage 2.4. Cognitive function was assessed in all patients; and the mean Mini Mental Sate Examination (MMSE) score was 26.5 (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 57.8 %, urinary incontinence in 15.6 %, daytime urinary frequency in 75.6 % and urinary retention (post-void residual > 100 ml) in 2 %. A urodynamic study revealed a mean volume at the first sensation 114.9 ml (42-306 ml; 100< normal <300 ml): bladder capacity 241.7 ml (63-414 ml, 200< normal <600 ml); and detrusor overactivity in 43.6 %. Sphincter electromyography (EMG) revealed neurogenic change in 10 % on whom the test was performed. Average specific binding ratio (SBR) of 123I-ioflupane scintigraphy had significant correlation with bladder capacity (Spearman's correlation coefficients $p<0.05$).

Interpretation of results

In the present study, EMG-cystometry revealed DO in 46.3% of the patients studied. The result was less than those in the previous reports (Fitzmaurice et al., 1985a, Palleschi et al., 2006, Sakakibara et al., 2001a, Stocchi et al., 1997 and Uchiyama et al., 2006). This presumably reflected early (short disease duration) PD in the present study. For the first time to our knowledge, average SBR had significant correlation with bladder capacity in the present study. 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 the striatum, which was 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. Our study results revealed PD's brain pathology in the striatum, which was relevant to the higher control of storage in micturition.

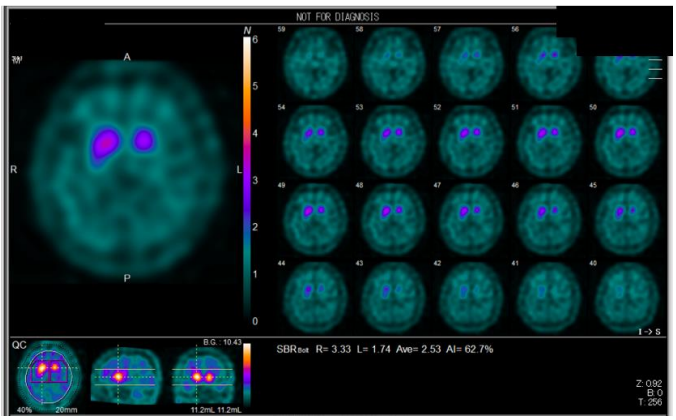


Figure 1:123I-ioflupane scintigraphy in Parkinson's disease. Striatal images were disappeared in this patient, indicating degeneration of the nigrostriatal pathway that was a biomarker for the diagnosis of DLB and Parkinson's disease.

References

1. SPECT imaging of the dopamine transporter with w123Ix-b-CIT reveals marked decline of nigrostriatal dopaminergic function in Parkinson's disease with urinary dysfunction
2. Relationship between nigrostriatal dopaminergic degeneration, urinary symptoms, and bladder control in Parkinson's disease

Disclosures
**Funding:** no **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Ethics Committee of Sakura Toho university **Helsinki:** Yes **Informed Consent:** Yes