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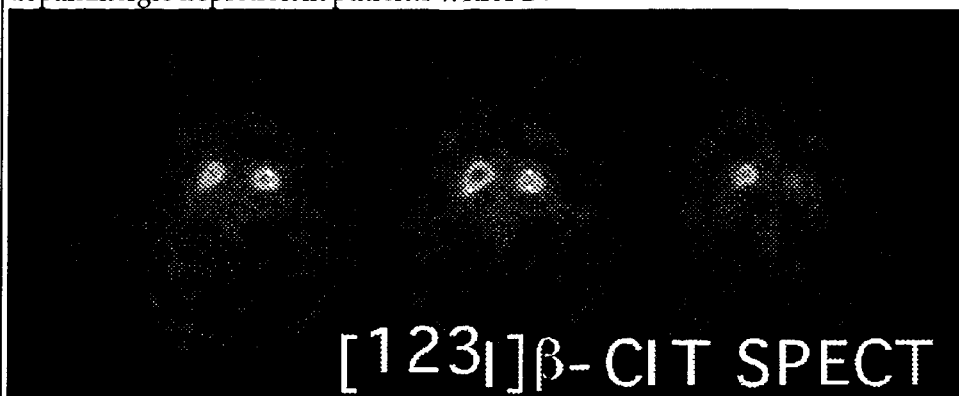
SPECT IMAGING OF THE DOPAMINE TRANSPORTER WITH [¹²³I]-β-CIT REVEALS MARKED DECLINES OF NIGROSTRIATAL DOPAMINERGIC FUNCTION IN PARKINSON'S DISEASE WITH URINARY DYSFUNCTION

Background We studied the correlation of urinary dysfunction (PD) with nigrostriatal dopaminergic deficit in Parkinson's disease, as evaluated by the single-photon emission computed tomography (SPECT) imaging of the dopamine transporter with [¹²³I]-2β-carbomethoxy-3β-(4-iodophenyl)tropane (β-CIT).

Methods Eleven patients were enrolled in the study, including 4 men and 7 women, mean age of 64 years. Seven of the patients had urinary symptoms 1 to 5 years after the onset of motor disorder, which included night time frequency (more than twice) in 6, urinary retardation in 4, daytime frequency (more than eight) in 1 and urge urinary incontinence in 1. Using SPECT camera, the ratio specific to nondisplaceable [¹²³I] β-CIT uptake, designated as 'striatal V3,' was obtained in the caudate, anterior and posterior putamen 24 hour after tracer injection. The striatal V3 was compared in patients with and without urinary dysfunction using unpaired Student's t-test. Striatal V3 was compared with men and women patients with urinary dysfunction. Correlation of sex, motor dysfunction and duration of illness with urinary dysfunction was also analyzed.

Results In the patients, there was a reduction of [¹²³I] β-CIT binding in the striatum on both sides, particularly in the putamen contralateral to the affected body side. The striatal V3 of the caudate (p<0.01, Rt; p<0.05, Lt), anterior putamen (p<0.05, Rt) and posterior putamen (p<0.05, Rt) in the group with urinary dysfunction was significantly reduced to the group without urinary dysfunction. No sex difference was seen in reduction of [¹²³I] β-CIT binding. Urinary dysfunction in PD was more common in patients with higher Unified Parkinson's Disease Rating Scale (UPDRS) score, higher Hoehn-Yahr grade, but not in those with longer duration of disease, although there was no statistical significance.

Conclusion The results indicate that urinary dysfunction could reflect severe nigrostriatal dopaminergic depletion in patients with PD.



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