

Reproducibility of dopamine transporter density measured with ^{123}I -FPCIT SPECT in normal control and Parkinson's disease patients

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The objective of this study was to evaluate the reproducibility of ^{123}I -FPCIT SPECT by using whole striatal region of interest (ROI) and subdivided ROI in normal controls (NC) and Parkinson's disease (PD) patients. **Methods:** Ten NC and 6 PD received a SPECT scan for 6 hours postinjection of FPCIT. The distribution volume ratio (R_V) and specific-nonspecific tissue activity ratio (R_T) were measured as an outcome measure. The test/retest reproducibility of R_V and R_T was evaluated by calculating the test/retest difference, variability, and reliability. **Results:** There were no significant test/retest differences for any regions in either the NC or PD. The test/retest variability/reliability of R_V was $5.53 \pm 4.12\%/0.89$ in NC, $4.50 \pm 5.31\%/0.99$ in PD with whole striatal ROI, $4.29 \pm 0.78\%/0.94 \pm 0.03$ in NC, and $6.87 \pm 1.23\%/0.98 \pm 0.01$ in PD with subdivided ROI. The test/retest variability/reliability of R_T was $11.1 \pm 10.4\%/0.59$ in NC, $7.84 \pm 8.94\%/0.95$ in PD with whole striatal ROI, $11.9 \pm 1.22\%/0.65 \pm 0.06$ in NC, and $12.2 \pm 4.00\%/0.95 \pm 0.03$ in PD with subdivided ROI. **Conclusion:** R_V is highly reproducible and reliable compared with R_T in both NC and PD as an outcome measure.

Key words: ^{123}I -FPCIT, reproducibility, distribution volume ratio