

Positron emission tomography with 4-[¹⁸F]fluoro-L-*m*-tyrosine in MPTP-induced hemiparkinsonian monkeys

Nobuaki HAYASE, Katsuyoshi TOMIYOSHI, Kazushige WATANABE, Satoru HORIKOSHI,
Takashi SHIBASAKI and Chihiro OHYE

*Department of Neurosurgery and Nuclear Medicine,
Gunma University School of Medicine*

PET imaging studies with 4-[¹⁸F]fluoro-L-*m*-tyrosine (FMT) in normal macaca monkeys showed selective accumulations of radioactivity in the striatum with time. In monkeys rendered hemiparkinsonian by intracarotid infusion of 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP), FMT uptake was eliminated in the lesioned striatum. FMT-PET studies were able to detect dopaminergic terminals in both normal and hemiparkinsonian monkeys, and clearly showed a reduction in aromatic L-amino acid decarboxylase (AAAD) activities in the MPTP-lesioned striatum. These results show that FMT is promising as a PET tracer for the evaluation of central dopaminergic systems in parkinsonism.

Key words: PET, Parkinson's disease, fluoro-L-*m*-tyrosine, MPTP, primates