TITLE:
Cerebral Infarction With Increased Uptake on $^{123}$I-FP-CIT SPECT

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Abstract

A 76-year-old woman underwent $^{123}$I-FP-CIT brain SPECT due to postural reflex impairment. The transverse slices demonstrated increased uptake in the right middle cerebral artery territory. MR images obtained two weeks earlier showed cerebral infarction in the corresponding area. $^{123}$I-FP-CIT has high binding affinity for dopamine transporters, especially in the nerve endings of nigrostriatal dopaminergic neurons.

Key Words: infarction; brain; $^{123}$I-N-ω-fluoropropyl-2β-carbethoxy-3β-(4-iodophenyl)nortropane ($^{123}$I-FP-CIT); dopamine transporter; single photon emission computed tomography (SPECT)
**Figure Legend**

**FIGURE 1.** A 76-year-old woman underwent $^{123}$I-FP-CIT brain SPECT due to postural reflex impairment. The transverse slices (A) demonstrated increased uptake near the surface of the brain in the right middle cerebral artery territory (arrows). Diffusion-weighted (B) and fluid attenuated inversion recovery (FLAIR) (C) MR images obtained two weeks earlier showed cerebral infarction in the corresponding area.

$^{123}$I-FP-CIT has high binding affinity for dopamine transporters, especially in the nerve endings of nigrostriatal dopaminergic neurons. In general, there is no increased uptake outside the striatum. However, extrastriatal elevated uptake on dopamine transporter imaging has been reported in an intra-axial tumor,\(^1\) brain metastases,\(^2, 3\) meningiomas,\(^4, 5\) a skull hemangioma,\(^6\) and an intramuscular hematoma.\(^7\) $^{123}$I-FP-CIT is also known to show decreased uptake at the old striatal infarction.\(^8\)

Reactive astrocytes de novo express dopamine-1 receptors and dopamine-2 receptors after experimental stroke in rats.\(^9\) Activated microglia and peripherally derived macrophages de novo express dopamine-2 receptors after experimental stroke in mice.\(^10\) In our case, a similar mechanism may have increased $^{123}$I-FP-CIT uptake in the subacute infarct lesion.
References


