

Early and late images of ¹²³I-iomazenil(IMZ)single photon emission computed tomography (SPECT)reflect distributions of cerebral blood flow and those of cortical benzodiazepine receptor binding potential, respectively. Crossed cerebellar diaschisis reflects left-to-right asymmetry of metabolism in the cerebral hemispheres. We present a case of a 67-year-old woman who developed transient aphasia 3 days after the onset of a mild acute subdural hematoma. Computed tomography scan and magnetic resonance imaging during aphasia did not show enlargement of the hematoma or any new lesions. Electroencephalography did not show any abnormalities. Early images of ¹²³I-IMZ SPECT 3 days after the onset of aphasia revealed a decrease in radioactivity in the right cerebellar hemisphere relative to that in the left cerebellar hemisphere. Late images of the same ¹²³I-IMZ SPECT displayed a decrease in radioactivity in the left cerebral hemisphere relative to that in the right cerebral hemisphere. Twenty-four days later, the aphasia disappeared and the left-to-right asymmetries of radioactivity in the cerebellar and cerebral hemispheres on the early and late ¹²³I-IMZ SPECT images also resolved ¹⁾.

Fifty-nine patients (31 females, 28 males; mean age, 29 years; median age, 27 years; range, 7-56 years) underwent subdural electrode implantation followed by focus resection. All patients underwent 18FDG-PET, IMZ-SPECT, and focus resection surgery. Follow-up was continued for ≥ 2 years. We evaluated surgical outcomes as seizure-free or not and analyzed correlations between outcomes and concordances of low-uptake lobes on PET, SPECT, or both PET and SPECT to the resection lobes. We used uni- and multivariate logistic regression analyses.

RESULTS: In univariate analyses, all three concordances correlated significantly with seizure-free outcomes (PET, $p = 0.017$; SPECT, $p = 0.030$; both PET and SPECT, $p = 0.006$). In multivariate analysis, concordance between resection and low-uptake lobes in both PET and SPECT correlated significantly with seizure-free outcomes ($p = 0.004$). The odds ratio was 6.0.

CONCLUSION: Concordance between interictal 18FDG-PET and IMZ-SPECT suggested that the epileptogenic lobe is six times better than each examination alone among patients with non-lesional findings on MRI. IMZ-SPECT and 18FDG-PET are complementary examinations in the assessment of localization-related epilepsy. ²⁾.

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Yoshida J, Komoribayashi N, Oikawa K, Ohmama S, Kojima D, Shimada Y, Ogasawara K. [¹²³I-Iomazenil Single-Photon Emission Computed Tomography Imaging in a Patient with Mild Traumatic Subdural Hematoma Accompanied by Delayed Transient Aphasia]. No Shinkei Geka. 2018 Dec;46(12):1081-1086. doi: 10.11477/mf.1436203872. Japanese. PubMed PMID: 30572305.

²⁾

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