

Summary

Compartment Analysis of ^{123}I -Iomazenil Brain SPECT in Patients with Moyamoya Disease

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We investigated 11 patients with moyamoya disease about ^{123}I -Iomazenil kinetics in the brain using three-compartment, two-parameter model. The transition rate constant (K1) from the blood to the brain and the binding potential (BP) of the benzodiazepine to the receptors were calculated for every ROI (right and left side of cerebellum, frontal lobe, parietal lobe, occipital lobe and temporal lobe; 10 ROIs a case). The K1 value correlated with BP value significantly, but not so closely ($r = 0.639$). And there is no significant difference in BP value among low-K1 group (mean (of K1)

- S.D. $K1$ mean) and high-K1 group (mean $< K1$ mean + S.D.). This means that CBF and BP do not correlate closely in the average Moyamoya disease patients. And we showed a case with IMP/IMZ discrepancy. The nerve cell in the hypoperfused area which has almost normal BP value is ischemic but viable. IMZ-SPECT presents an important information about the viability of the hypoperfused area in Moyamoya disease patients' brain.

Key words: Iomazenil, SPECT, Moyamoya disease, Benzodiazepine receptor, Quantitative analysis.