

Asymmetries of benzodiazepine receptor binding potential in the inferior medial temporal lobe and cerebellum detected with ^{123}I -iomazenil SPECT in comparison with $^{99\text{m}}\text{Tc}$ -HMPAO SPECT in patients with partial epilepsy

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We examined the relation between regional ^{123}I -iomazenil (IMZ) parameters and cerebral blood flow (CBF) to evaluate the difference between the quantitative parameters of IMZ and the CBF in detecting epileptic abnormality. Seventeen patients with unilateral partial epilepsy were subjected to $^{99\text{m}}\text{Tc}$ -hexamethylpropylene amine oxime (HMPAO) SPECT, and early and delayed IMZ SPECT. Then we quantitatively obtained the blood-to-brain transfer constants (K_1) and binding potentials (BP) for nine regions of interest, and the regional CBF was also by using the simple angiographic method. From our data, significant asymmetries of BP in the inferior medial temporal lobe and cerebellum were shown and may be related to a remote effect such as crossed cerebellar diaschisis. In conclusion, the asymmetry of BP with iomazenil SPECT was demonstrated in patients with unilateral epilepsy that was not detectable by HMPAO SPECT.

Key words: partial epilepsy, benzodiazepine receptor, cerebral blood flow, binding potential, brain receptor imaging