

I-123 iomazenil SPECT in patients with mental disorders

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The purpose of this study is visual evaluation of the distribution of I-123 iomazenil in the brains of patients with various types of mental disorder and to examine whether chronic administration of a clinical dose of benzodiazepine (BZ) affects the binding of I-123 iomazenil to BZ receptors (BZR). The subjects were 10 patients with mental disorders (3 males and 7 females) with a mean age of 26.8 yrs (range 19-39 yrs). Four of 10 patients were administered BZ for over 3 months and the other six were free of BZ for over one month. The SPECT images were obtained at 5-25 min (early) and 170-190 min (delayed), after the bolus i.v. injection of 167 MBq of I-123 iomazenil, with a triple-head gamma camera. The images were visually evaluated and the washout ratios of each region were calculated. In visual analysis, abnormalities were recognized in 5 patients on the delayed SPECT. The abnormalities were recognized more frequently in the superior frontal lobe. The washout ratio was higher in the BZ (+) patient group than in the BZ (-) patient group. I-123 iomazenil is useful, because the SPECT image with I-123 iomazenil reflects the distribution of BZR on the brain and provides the different information from that obtained with perfusion SPECT, X-ray CT or MRI. The rapid washout of I-123 iomazenil from the brains of BZ (+) patients suggests that chronic administration of a clinical dose of BZ affects the binding of I-123 iomazenil to BZR.

Key words: I-123 iomazenil, mental disorder, washout ratio, SPECT