

Early and delayed imaging with ^{123}I -IMP SPECT in patients with ischemic cerebrovascular disease

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Cerebral blood flow imaging with N-isopropyl (I-123) p-iodoamphetamine (IMP) was performed in 44 patients with ischemic cerebrovascular disease (CVD) at an acute or sub-acute stage less than 30 days from the onset. IMP imaging was obtained at 20 minutes (early scan) and 4 hours (delayed scan) after intravenous injection of 222 MBq of IMP. The region of interest (ROI) was selected in a slice compatible with the findings on the CT images, and the lesion to tissue ratio (L/T ratio) was calculated in a comparison with the unaffected side. The redistribution index (RI) was also calculated by dividing the difference between the L/T ratio in early and delayed image by the L/T ratio in early image. The patients were classified into three groups (Grade 1, 2, 3) on the basis of the CT findings. The L/T ratio in the delayed images and RI was high in grade 1 and 2 groups and low in grade 3 groups both in early and delayed scans. The RI had tendency to grow high as the days after the onset became later. In the duration period from 4 to 7 days, 'reversed' redistribution was observed in 4 cases. Follow up examinations were performed in 6 cases in grade 3 group. The RI became higher in 3 cases and lower in 3 cases in the second examination.

In conclusion, good redistribution was observed in grade 1 and 2 groups, and the prognosis was good. On the other hand, poor redistribution was observed in grade 3 group. There was little relationship in the degrees of redistributions or 'reversed' redistribution between the first and second examination in grade 3 group.

Key words: ^{123}I -IMP SPECT, Cerebrovascular disease, Cerebral blood flow, Reversed redistribution, Redistribution