

Discrepant ^{99m}Tc -ECD images of CBF in patients with subacute cerebral infarction: A comparison of CBF, CMRO_2 and ^{99m}Tc -HMPAO imaging

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Three patients with subacute ischemic cerebral infarction examined by SPECT with ^{99m}Tc -ECD and PET within the same day showed signs of luxury perfusion in the subacute phase, which is between 9 to 20 days after the onset. A ^{99m}Tc -HMPAO SPECT study was also performed within 2 days of the ECD-SPECT study.

ECD-SPECT images of three patients displayed a focal decreased uptake in the infarcted lesions, while in infarcted foci, there was almost equivalent or increased CBF compared to normal and unaffected areas, decreased CMRO_2 , and high HMPAO uptake. The ECD-SPECT results were similar to those of CMRO_2 rather than CBF, though the HMPAO-SPECT image was similar to that of CBF. In one patient, HMPAO images revealed hyperfixation of the tracer. In the chronic phase and in the acute phase before 5 days after the onset, there were no discrepancies among the ECD-SPECT, CBF, HMPAO-SPECT, and CMRO_2 images.

These observations indicated that ^{99m}Tc -ECD is a good indicator of damaged brain tissues in subacute ischemic infarction. They also suggested that ^{99m}Tc -ECD is a potential agent with which to evaluate cerebral tissue viability in some pathological states of cerebrovascular disease. The characteristics may be suitable for confirming the effects of thrombolytic therapy in acute ischemia, because these conditions often show signs of luxury perfusion when the therapy is successful.

Key words: ^{99m}Tc -ECD, ^{99m}Tc -HMPAO, cerebral infarction, luxury perfusion, CBF, CMRO_2