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Contralateral Thalamic Hypoperfusion on Brain Perfusion SPECT in Patients with Hemisensory Impairment

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Objectives: Brain perfusion single photon emission computed tomography (SPECT) is useful for the localization of cerebrovascular lesion and sometimes reveals more definite lesion than radiologic imaging modality such as CT or MRI does. The purpose of this study was to evaluate the diagnostic usefulness of brain perfusion SPECT in patients with hemisensory impairment. **Methods:** Thirteen consecutive patients (M:F = 8:5, mean age = 48) who had hemisensory impairment were included. Brain perfusion SPECT was performed after intravenous injection of 1110 MBq of Tc-99m ECD. The images were obtained using a dual-head gamma camera with ultra-high resolution collimator. Semiquantitative analysis was performed after placing multiple ROIs on cerebral cortex, basal ganglia, thalamus and cerebellum. **Results:** There were 10 patients with left hemisensory impairment and 3 patients with right-sided symptom. Only 2 patients revealed abnormal signal change in the thalamus on MRI. But brain perfusion SPECT showed decreased perfusion in the thalamus in 9 patients. Six patients among 10 patients with left hemisensory impairment revealed decreased perfusion in the contralateral thalamus on brain SPECT. The other 4 patients revealed no abnormality. Two patients among 3 patients with right hemisensory impairment also showed decreased perfusion in the contralateral thalamus on brain SPECT. One patients with right hemisensory impairment showed ipsilateral perfusion decrease. Two patients who had follow-up brain perfusion SPECT after treatment revealed normalization of perfusion in the thalamus. **Conclusion:** Brain perfusion SPECT might be a useful tool in diagnosing patients with hemisensory impairment.