

Evaluation of Vascular Imaging with  $^{99m}\text{Tc}$ -Red Blood Cells for Cerebrovascular Disorders  $\Delta$ Diagnostic Value of the Patency of Superficial Temporal Artery-Middle Cerebral Artery Anastomosis (STA-MCA anastomosis) Motohisa Takemoto\*, Kimihiro Yoshino\*, Nobumi Yabuno\*, Ryosuke Katagi\*, Akihiro Doi\*, Takashi Furutsubo\*\*and Koji Kato\*\*  
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The patency of the STA-MCA anastomosis for eight cases were studied by vascular imaging with  $^{99m}\text{Tc}$  labeled autologous red blood cells. Three cases out of these eight patients were also studied by RI scintigram with  $^{99m}\text{Tc}$  pertechnetate. After intravenous injection of  $^{99m}\text{Tc}$ -RBCs, radionuclide cerebral angiography and the static vascular image of the head and neck obtained during one hour. The patency of STA-MCA anastomosis was clearly visible on  $^{99m}\text{Tc}$ -RBCs vascular image in six out of eight patients, but the patency was visible on  $^{99m}\text{Tc}$  pertechnetate radionuclide angiography in only one out of three patients.

The patency of anastomosis at the temporal region was more clearly visible on  $^{99m}\text{Tc}$ -RBCs radionuclide angiography than  $^{99m}\text{Tc}$  pertechnetate angiography.

The  $^{99m}\text{Tc}$ -RBCs vascular imaging is useful for the detection of the patency of STA-MCA anastomosis.

#### COMPERATIVE EVALUATION OF CLINICAL UTILITY BETWEEN CT & RI BRAIN SCAN

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Clinical utility of CT & RI scan about cerebral disorders, especially tumor, CVD and SDH was comparatively evaluated. GE CT/T scanner and camera computer system were used. 215 cases with suspected cerebral diseases were studied by both methods.

Results were as follows:(1)Among 605 cases evaluated by CT from January 1978 to August 1978, Head was 500(83%), thorax 21(3%), abdomen 80(13%) and others 4(1%). (2)215(43%) out of 500 head scans were simultaneously examined by RI. 16 cases(76%) out of 21 thorax scans were also examined by RI. 61(76%) out of 80 abdomen scans were also examined by RI. (3)In the brain scans studied by these two modalities following diagnostic sensitivity was found (CVD):CT (+)/RI(+):79 CT(+)/RI(-):12 CT(-)/RI(+):13 CT(-)/RI(-):16, (tumor):CT(+)/RI(+):12 CT(+)/RI(-):3, (SDH):CT(+)/RI(+):9 (4)The involved area of CVD were shown by CT scan in cerebral cortex(48%), in basal nuclei(41%) and mixed type(11%). (5)Total CVD cases could be positively diagnosed by CT scan in 78%. Acute CVD cases within a week after the onset showed decreased positive finding of 57%.

In conclusion, the usefulness of CT scan was noted for the diagnosis of size of ventricle, the cerebellar atrophy, skull lesion, small brain tumor and bleeding of basal ganglia more than RI examination. Differential diagnosis between bleeding and infarction even if immediately after the onset could be obtained by CT scan. On the other hand, the usefulness of RI scan was able to diagnose quantitatively the cerebral blood flow between both hemispheres with cerebral RI angiography(CRAG). CRAG was especially sensitive in the old CVD case even when CT scan showed negative result. Abnormality in the cervical vessels could be diagnosed by CRAG. RI scan showed less side effect due to unnecessary of contrast agent. In cases of hemorrhagic infarction with marked mass effect resembling brain tumor, combination of CT & RI scan made early and confirmative diagnosis.