Clinical Evaluation of Cerebrovascular Diseases (CVD) with 1-123 Iodoamphetamine (I-123 IMP) and Single Photon Emission Tomography (SPECT)

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Brain imaging with I-123 IMP and SPECT was performed in 21 persons (one normal, 10 ischemic CVD, 9 ruptured aneurysm, one postoperative giant aneurysm). Comparing with X-ray CT, K-81m perfusion scan, and intracarotid Xe-133 clearance method, in 5 of 5 CVD pts, with neurological symptoms, uptake defects in the low density areas (X-CT), and uptake decreases around those area were shown by I-123 IMP imaging. One pt. with microembolic infarction after cardiac operation was normal in I-123 IMP imaging and X-CT, though neurologically symptomatic. In one pt., I-123 IMP imaging detected the abnormal ischemic area earlier than other methods. In 5 pts, fully recovered from strokes and no neurological deficits, I-123 IMP imaging showed uptake decreases in larger areas than expected by other methods and were able to demonstrate the responsible area for the previous neurological deficits. In CVD, I-123 imaging were useful for following pts. before and after surgical bypass therapy. Vasospasms are very important problem in the prognosis of pts. with ruptured aneurysm. In all 7 Pts., with angiographically defined vasospasms, uptake defects or decrease were demonstrated compatible with the territories of vasospastic arteries, though 3 cases were negative in X-CT. I-123 IMP imagings are non-invasive and sensitive methods in accurately demonstrating the perfusion abnormalities in the brain.

Clinical Estimation of Cases with Cerebrovascular Disease Using N-IsoPropyl 1-123 Iodoamphetamine (IMP)

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7 patients with cerebrovascular disease and one volunteer underwent IMP-SPECT. The results of radionuclide examination were compared with contrast cerebrovascular angiography and X-ray CT scan. We found that even the high density area in dynamic CT scan showed low radioactivity in IMP-SPECT, using X-ray CT at the same time, foci of low perfusion was detected with certainty, and IMP-SPECT was useful in estimation of surgical treatment.