## 51

COMPARISON BETWEEN THE IMAGE OF (N-ISOPROPYL-P-I-123-IODOAMPHETAMINEIMP) AND REGIONAL CEREBRAL BLOOD FLOW (rCBF) BY Xe-133 INHALATION METHOD.

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We compared N-isopropyl-p-I-123-iodo-amphetamine (IMP) studies to regional cerebral blood flow (rCBF) studied with Xe-133 gas inhalation method in 3 normal volunteers and in 10 patients (infarction 7, hematoma 3).

Method:The single photon emission computed tomography (SPECT) was done with HEADTOME-II. IMP images were obtained immediately after an intravenous injection of 3mCi of IMP with high resolution mode, and data were collected for 15 minutes. rCBF study was performed using the high sensitivity mode with patients inhaling 20mCi per liter Xe-133 gas for minute. Data were obtained for 10 minutes.

Result:Our study demonstrated that IMP images showed ischemic regions and areas of hematoma more clearly than rCBF study (better spatial resolution). The IMP distribution on the early scan was similar to the rCBF images.

## 52

COMPARISION OF $^{123}$I-IMP WITH $^{133}$Xe-INHALATION rCBF METHOD FOR DIAGNOSIS OF CEREBRO-VASCULAR DISORDER. T.Yamazaki,T.Suzuki, K.Uchida,N.Kawaguchi,K.Masuda,T.Honda, Y.Morioka,T.Yamazaki,M.Matsuda,G.Handa, R.Kikkawa,U.Shigeta. Shiga Medical School, Ohtsu.

The purpose of the study is the evaluation of a clinical usefulness of non-invasive $^{123}$I-IMP and Xe-inhalation method of cerebrovascular disorders. Objects were cerebrovascular disorders(Brain infarction, brain bleeding and AVM et al). 15 minutes after venous injecting 3 mCi of IMP, opening eyes. We took the images of 5 views of the head by a scinticamera. In brain bleeding IMP method showed lager ishemic area of brain tissue than CT method. But Xe-inhalation method couldn't show the decrease of the local blood flow in the deep focus. $^{123}$I-IMP imaging after operation clearly showed the more decreased blood perfusion in brain damaged tissue by the operation than the pre-operation. The area with the decreased perfusion in IMP image was wider than that in CT images, which revealed only the decrease vascular blood flow, and that is, IMP images could reveal the brain edema by the brain tissue damage.

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## 53

**SPECT OF THE BRAIN USING N-ISOPROPYL-P-[I-123] IODOAMPHETAMINE(IMP) COMPARED WITH THE LOCAL CEREBRAL BLOOD FLOW MEASUREMENT WITH Xe-133. K.Tsuchiya, N.Kosaka,T.Momose,T.Machida,J.Nishikawa, K.Machida and M.Iio. University of Tokyo, Tokyo.**

**N-isopropyl-p-[I-123]iodoamphetamine (IMP) is a radiopharmaceutual which can be used to evaluate regional cerebral perfusion when it is combined with SPECT. Both SPECT of the brain with IMP and the local cerebral blood flow(LCBF) measurement with Xe-133 were performed in 7 subjects: three cases with Moya-moya disease, two cases with stenosis of the middle cerebral artery, one case with occlusion of the internal carotid artery and one case with normal pressure hydrocephalus.**
**Good agreement was found between the SPECT with IMP and the Xe-133 LCBF studies. Although SPECT with IMP is capable of providing LCBF findings with higher resolution, the Xe-133 study seems to be an additional choice of method to get quantitative information.**

## 54

N-ISOPROPYL I-123 P-IODOAMPHETAMINE BRAIN SCINTIGRAPHY WITH SPECT IN CEREBRAL INFARCTION. --CROSSED CEREBELLAR DIASCHISIS-- T.Momose,N.Kosaka,J.Nishikawa,K.Machida, T.Ohtake,K.Tsuchiya,T.Machida,M.Iio. University of Tokyo, Tokyo

N-isopropyl I-123 P-iodoamphetamine(I-123 IMP) has high lipid solubility and high first-pass extraction ratio, whose distribution has been reported to reflect regional cerebral blood flow at the time of injection. We applied this agent to patients with cerebral infarction. Twelve cases were studied. The region of abnormality turned out to be larger on IMP-SPECT than on X-CT in all cases including four cases in which IMP-SPECT revealed perfusion deficit area in spite of no abnormality on X-CT. In eight cases, the phenomenon of crossed cerebellar diaschisis was observed. Severe and large decreased perfusion area in parietal lobe proved to be characteristic. In four cases in which this phenomenon was not found, perfusion to the parietal lobe was preserved comparatively. In conclusion, I-123 IMP-SPECT is sensitive enough to detect remote effect and the parietal lobe seemed to play an important role in the development of crossed cerebellar diaschisis.