## 2403

CLINICAL EVALUATION OF SINGLE PHOTON ECT USING UNIVERSAL GAMMA CAMERA. T.Nakajima, K.Mishio, Y.Watanabe, M.Sakura, Y.Sasaki and T.Nagai Saitama Cancer Center, St. Marianna University School of Medicine and Gunma university School of Medicine. Ina, Kawasaki and Maebashi.

This paper reported the clinical usefulness of SPECT using Universal Gamma Camera (Toshiba, GCA 401-5), particularly about the clinical evaluation of ECT of the liver, the composite display of ECT and XCT contour image and the reconstruction of arbitrary axis tomograms.

For ECT of the liver 60 profile images were taken with sampling time of 10sec after intravenous injection of Tc-99m phytate (5-10 mCi). Three dimentional tomographic images(transaxial, frontal and sagittal)were all assessed simultaneously. Among 36 lesions of which sizes were precisely measured by US,XCT and operation, all lesions measuring larger than 1.5 cm in diameter were clearly revealed as focal defects.

The composite display of ECT images superimposing on the contour images derived from XCT at the same slice level has proved useful for complemental evaluation of lesion combining different informations about morphology and function of organs or tissue.

The reconstruction of the arbitrary axis tomograms from ECT images was found to be useful for exact evaluation of organs existing obliquely to the body axis, such as heart and kidney.

## 2404

APPLICATION OF SINGLE PHOTON ECT FOR DYNAMIC STUDY. T.Mukai,K.Yamamoto,N.Tamaki,K.Ninato,T.Fujita,Y.Ishii R.Morita and K.Torizuka,Kyoto Univ. Hosp.Kyoto.

We evaluated feasibility of dynamic study in a form of ECT using a rotating gamma camera.Scince sensitivity of gamma camera is rather limited and takes a time to sample data one around the body,it seemed to be difficult to follow a dynamic process.However dynamic study can be imaged in a tomographic slice under following conditions;1)physiological gated process,2)slow clearance process and 3)steady state process. Gated studies applicated for heart pumping action synchronized with ECG. To reduce a sampling time,half around 180° data sampling was adopted. Namely,data acqusition time for blood pool study with 99m-Tc-RBC took about 15 min,and 30 min for 201-Tl myocardial study.These seemed to be feasible.The ECG gated heart ECT was especially useful to emerge a subtle wall motion abnomalities which an ordinary gated study could not be resolved.On the functional ECT for slow dynamic process of tracer,we adopted to excretion process from hepatobilialy system in order to calculate clearance rate.The liver ECTs were obtained sequentially from 15 to 70 min after injection of 10 mCi of 99m-Tc-EHIDA. Steady state ECT was performed to calculate rCBF by contineous injection of 81m-Kr saline .This technique was also feasible and clinically useful.

## 2405

POSITRON CT STUDY FOR CEREBROVASCULAR DISEASES. T.Takashima, A.Yamaura, S.Tamachi, F.Shishido, Y.Tateno, A.Yamane, N.Fukuda, T.Yamazaki, K.Fukushi, T.Irie, O.Inoue, T.Iinuma, Y.Suda, M.Endo, M.Uoji, K.Tamate, E.Tanaka and A.Kurisu Dep. of Neurosurgery,Chiba University and National Institute of Radiological Sciences. Chiba

We are applying positron CT (PCT) in neurosurgical patients,particularly in ischemic cerebrovascular diseases. We found some superiority in PCT rather than in other usual neuroradiological diagnostic tools.

We have been studying the cerebral circulation and metabolism of ischemic brains in three-dimension by PCT with N-13-ammonia,C-11-carbon monoxide and F-18-fluorodeoxyglucose (F-18-FDG) for local cerebral glucose utilization rate (l-CMR-Glucose).

In a TIA case without notable findings on X-ray CT, a probably responsible lesion was well portrayed on PCT as a lowered perfusion area. In stroke cases, two overwhelming points were realized. One is,compaired with X-ray CT findings,an area of lowered perfusion was very broadwide and was beyond expectation. The other is the difference of accumulation between F-18-FDG and N-13-ammonia in fresh infarctions. In epilepsy cases, probable epileptogenic foci were clearly visualized in PCT, particularly in glucose imaging. Additionally, PCT imaging was very useful to evaluate the effect of by-pass surgery.

## 2406

POSITRON CT IMAGING FOR PSYCHIATRIC AND NEUROLOGICAL DISEASES. F. Shishido, Y.Tateno, N.Fukuda, T.Yamane, T.Yamasaki, K.Fukushi, T.Irie, O.Inoue, T.Iinuma, Y.Suda, M.Endo, M.Uoji, K.Tamate, T.Takashima, S.Tamachi, H.Ikehira, E.Tanaka, A.Kurisu, I.Namura, and Y.Saito. National Institute of Radiological Sciences, Chiba University, and Tokyo University.

We performed positron computed tomography (PCT) using F-18-fluorodeoxyglucose (F-18-FDG), N-13-ammonia (N-13-NH3) and C-11-carbonmonoxide(C-11-CO) as indicators of glucose utilization, relative perfusion and blood volume, repectively for psychiatric and neurological diseases. We studied 2 cases with auditory hallucination and a case of Huntington's disease. In cases with auditory hallucination, there is no increased uptake of F-18-FDG and N-13-NH3 on auditory cortex, though the patients complained auditory hallucination during the adiministration and PCT imaging. This finding suggested that auditory cortex had not been stimulated by auditory hallucination. In case of Huntington's disease, the F-18-FDG uptake of bilateral caudates was markedly decreased and the N-13-NH3 uptake was slightly decreased. The uptakes of F-18-FDG and N-13-NH3 in putamen were slightly decreased. These findings accorded with the known pathological results by autopsy, which is atriatal atrophy, especially caudate atrophy.

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