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RCT IMAGE USING GAMMA CAMERA. -SOME EXAMINATION CONCERNING THE ABSORPTION CORRECTION AND OTHER PROBLEMS. Yoshihisa Akiyama* . Fuiimi Kinoshita** . Masaki Koakutsu** . and Nobuharu Yui** * Division of Physics, Chiba Cancer Center Hospital. ** Division of Nuclear Medicine, Chiba Cancer Center Hospital, Chiba

Single photon RCT images were obtained using conventional gamma camera, data processor and medium size electronic computer. To reconstruct the RCT image we have made absorption correction by geometric mean of opposing counts considering the thickness of source on the assumption that the attenuation coefficient is equal within the object. But the attenuation coefficient is not equal in human body. In present work, therefore, to reconstruct the RCT image we used the iteration method considering the difference of the attenuation coefficient. But, due to the results of phantom study, the reconstructed image considering the difference of the attenuation coefficient was not clearly superior to the method using the assumption that the attenuation coefficient is equal within the object.

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FUNDAMENTAL STUDIES ON RADIONUCLIDE COMPUTER TOMOGRAPHY BY GAMMA CAMERA AND OFF-LINE MINICOMPUTER. K.Kojima, T.Hiraki, K. Koshida, T.Maeda, K.Hisada, M.Yamada. Kanazawa University School of Paramedicine, School of Medicine and central Clinical Radioisotope Division.

Gamma camera with high resolution collimator(TOSHIBA GCA-401) was used as detector for obtaining projection data. The projection data consist of 36 frames(64x64/frame) or 18 frames. Off-line processing of these data was performed by YHP-2100 minicomputer(24kw.16bit). In this study reconstruction program of axial tomography from projection data was made by using filtered backprojection method. Computed tomographic images were displayed by dot printer and X-Y plotter. Resolution of reconstructed tomographic image was about 17.0 mmFWHM at center and 14.0 mmFWHM at peripheral of a slice. Uniformity was studied by water phantom (20 cm ϕ) with uniform radioisotope distribution. Uniformity of reconstructed image was good, within only 10% fluctuation. Absorption correction was done by simple method which corrected projection data by using exponential function. Also as clinical application, axial tomography of the kidney could be obtained.