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THE STUDY OF THE DETECTING ABILITY OF THE HOT AREAS ON THE DIGITAL IMAGES.  
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In the nuclear medical examination, the gamma cameras and computers make remarkable progress, and recently, the image become into the digital indication rapidly. We studied about the detecting ability to the hot areas of the digital image that has the ability of transaction and expression from many angles to informations of an image, with changing the factors, such as, collimator, matrix, count of dots and window mode. Method We made the flood source of 50cm in diameter with Tc-99m 5mCi as background, and put on ten plates of 3cm in diameter with different concentration of Tc-99m in each of them as phantom of the hot areas. We took the film and input the data to the computer at the same time. Result ① Detecting ability of the hot areas advance by increasing of collecting numbers of count. ② On detecting of the hot areas, the general collimator with high sensitivity has an advantage over the high resolution collimator in the case of same measurement time. ③ In the low counts, 256 × 256 matrix has an advantage and in high counts, 512 × 512 matrix has. ④ On detecting ability of the hot areas by window mode, there is not difference between the linear type and the exponential type but on the image, the image of exponential type is near to the analogue images.

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IMPROVEMENT IN THE TECHNIQUE FOR DIGITAL IMAGE DISPLAY IN NUCLEAR MEDICINE.  
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Diagnostic images in nuclear medicine are displayed using either a conventional dot imager or a video imager. The former provides analog images and the latter, digital. A software program has now been developed which permits the Toshiba digital gammacamera series, when recording digital images on film, to linearly set the relationship between  $\gamma$ -ray counts per pixel and blackening of the film. It thus displays an optimum image, which presents on the film correctly and with fidelity, the information contained in the acquired data. At the same time, comparison has been made between the conventional analog images and the present digital images, using a prototype phantom with the capability of setting the radionuclide concentration in 16 steps. The result of the comparative study showed that the digital imaging technique provides clear images by presenting on film the information contained in the image based on the total count, which was difficult with the conventional technique using the dot imager.

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PROCESS OF IMAGE DATA BY PERSONAL COMPUTER.

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The basic functions of a nuclear medicine computer system are the acquisition of data and the process of data. However, the process of data is usually late because a general nuclear medicine computer system is not provided with multiple CPU. We developed the program of process of image data for a personal computer system (PC-9801VM). The BASIC language is used for main part of the program and the machine language is used for part of faster process of data. pointing device is MOUSE. Image data is tranced by 8' floppy disk from MCS-560 to PC-9801VM. Processing images on CRT are displayed with 16 intensity level. Images of a study result are printed out by 24 pin dot-matrix printer with 10 intensity level.

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THE TRIAL OF THE VOICE ENTRY TYPE DATA ANALYSIS (BONE SCINTIGRAPHY REPORTINGS).  
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We reported in the 24th annual meeting of this society about the automatic data acquisition and reporting system of the bone scintigraphy with voice entry. So we already inputted about 300 cases' reports and tried some kinds of the data analysis using NEC computer ACOS 700S. Then we got nice impression to handle clinical reports' data for analysis.

Our system consists of micro computer PC-8800 (NEC) and speech recognizer DP-200 (NEC). This system is used the word input and asking system with computer, so about 360 words are registered in its memory.

There are two main purpose in this system, one is the save effort to input reports in a computer and the another is the possibility for the analysis of the inputted data. We propose our data analysis using this system and clinical utility.