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Development of Nuclear-Medical Data Processing System HARP. K.Koike, T.Maruyama, T.Nakamura*, K.Kimura** and Y.Ishida***. *Hitachi Medical Corp.. **Division of Nuclear Medicine, Osaka Univ. Hospital. ***First Dept. of Internal Medicine, Osaka Univ. Hospital.

To catch up with the prevailing of RI study and to meet various needs in the field, we developed HARP with consideration to the following: (1) Improvement in efficiency of routine RI study (2) Flexible adaptation to new theme of RI study (3) Easiness of system extension. For the improved dfficiency of routine RI study, a free menu was adopted, and protocols which execute of from measurement to analysis in series were prepared for various routine RI studies; for flexibly accomodate new theme of RI study, we developed nuclear-medical data processing language BIPOLA (= Basic Image Processing-Oriented Language). For the extensibility of the system, we adopted a mini-computer E600 and for data storage, a largecapacity magnetic disk is included in the basic system. The utility and advantages of this data processing system will be reported with reference to the clinical cases in which the system had been adopted for RI study of the hearts.

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Development of Nuclear-Medical Image Processing Langage BIPOLA. S.Kitagawa, K.Koike and T.Nakamura, Hitachi Medical Corp..

We developed BIPOLA (Basic Image Processing-Oriented Language) with which any medical image processing programs can be easily prepared. This language will be briefly reported below. This BIPOLA takes as base the BASIC language having been very popular along with the recent prevailing of personal computers, and is further provided with approximately 40 kinds of function with which computations for image reconstrution, ROI and curve as well as display and fine manipulations necessary for medical image processing can be done by making entry of a single instruction. Moreover, a dynamic linkage system was adopted which has fully automated the link edition of modules which is experienced in general high-level languages. The processing system is an intermediate code interpretative execution method in which consideration is given to the balance between the easiness of programming and program executing performance. With our BIPOLA, the following r are attained: (1) Language is easy to learn. (2) Necessary period of time for programming is shortened. (3) Volume of object program file is reduced. (4) Program maintenability is improved. (5) Availability of CPU memory is improved.

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THE AUTO-MULTI GAMMA COUNTER AND ITS QUALITY CONTROL BY THE DATA PROCESSING SYSTEM. Y. Tokuhara, Y.Shimada and K.Horio. R/D Engineering Department, Medical Systems Division, Shimadzu corporation. Kyoto.

The new auto-multi gamma counter has been developed to meet requirements of both high throughput of processing and measurement with various kinds of nuclide in RIA studies. Four detectors have been employed, and four test samples are measured simultaneously.

There are two important problems when multiple detectors are used. One is the difference of sensitivity and the other is the crosstalk among the detectors. The microcomputer is employed to compensate the data obtained by four detectors, and changes the measuring mode by reading the ID number on the sample's rack. I-125 is measured by four detectors, but other nuclides which have higher energy than I-125 are measured by one detector to avoid background noise affected by crosstalk between detectors. The microcomputer also performs the calibration of detector's sensitivity and examining the variance of it. The variance of data is easily controlled therefore.

The data are transfered to the data processing system with the ID number. The data processing system performs the quality control recommended by WHO. The quality control methods show the variance of data which are transfered from the auto-multi gamma counter. By means of examination of the data variance by built-in microcomputer and the quality control by the data processing system, the reliability of the auto multi-gamma counter was much improved.

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FULLAUTOMATIC LIQUID SCINTILLATION COUNTER RSP-β400. y.HATTORI,N.MAEZAWA,M.FUKUI,T. MIYAHARA. CENTRAL SCIENTIFIC COMMERCE,INC. TOKYO.

The RSP-β400 Radioactive Sample Processor automatically pipettes user-selected quantities of liquid sample(0.0ml to].0ml) and dispenses scintillator to make a uniform 4.0ml counting sample. The homogenous counting sample is transferred into one of the two available counting chambers for counting according to user-selected time and accuracy. These two counting chambers are computer-equalized for uniform counting efficiency and stability. The RSP-β400 Sample Processor uses no vials. Thus effects a savings in disposal cost and minimizes sample storage requirements. Optimum counting gemometry chambers are Teflon-lined for minimum sample-to-sample carryover,and maximized for counting efficiency. Sealed Sample Trays store]00 samples in a 7"x7"x]" volume. Radioactive waste is minimized(4.0ml/sample). Aqueous wash solution is automatically seperated and can be disposed of through the laboratory drain. The simple counting parameter entry system uses full keyboard ang CRT display incorporating up to]5stored Protocols. Data presentation is with a built-in CRT and silent page printer. Dual counting channels use preset or user-selectable counting windows. A battery protected memory prevents data or Program loss due to power failures. TheRSP-β400 Processor unit has bio-and chemiluminescence capability.