

imaging including 24 liver, 8 kidney, 4 pancreas, 1 spleen and 2 tumor scan, ultrasonographic examinations were performed using the marks as reference. Forty one studies on 39 patients with suspected S.O.L. There were 22 radionuclide scans positive and 13 equivocal for S.O.L. In 20 of the former group and 3 of the latter group, nature of the lesions could be diagnosed by ultrasonography. 7 cases in which ultrasonography following scintigram was useful for the specific diagnosis were demonstrated. They included hepatoma, two cases of liver metastasis, subphrenic abscess, polycystic liver, renal cell ca. and hydronephrosis.

Combination of the two procedure decreased false positive without increasing false negative studies. Reference markers made on the basis of scintigram assisted the ultrasonographic examination by allowing easy access to the organs or lesions and identification of the site of the lesions. Several diagnostic imaging procedures have recently been performed including conventional radiograph, RI scintigram, ultrasonography, and computed tomography. Such studies should be of value that decide the most effective combination of those procedures to avoid unnecessary physical and economical load to patients.

### **Experience of DEC GAMMA-11 for Nuclear Medicine Data Analysis**

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We have equipped a DEC GAMMA-11 computer system for nuclear medicine data analysis.

The system includes RT-11 minicomputer of 28 KW corememory, teletype writer, console terminal, color graphic CRT display, 2 disk drives of 1.2 million 16-bit word each, high speed paper reader, 2 magnetic tape drives for edited memory storage, and hard copy

The system deals with Foreground/Background operation. While collecting data from a scintillation camera in the foreground, the system also analyze data, or run BASIC, or run any other RT-11 program, or develop and run a user-program in the background. This realtime device saves time greatly. Addition to this, the automatic analysis feature of the system allows us to specify that predefined routine analysis is to be automatically started immediately when data acquisition has been completed.

Most of data manipulations are performed by

using simple two letter commands.

Random specification of irregular regions of interest can be defined by using a Joy stick, however, this Joy stick manipulation has some difficulties in setting favorable ROIs.

The original language is MACRO-ASSEMBLER but the RT-11 accepts BASIC FORTRAN IV or FOCAL, so we have made data analysis program for the in vivo assay in BASIC and analyzing data in off-line fashion.

Quickness and accuracy of the system are quite suitable for observation of sequential movement of dynamic study.

In summary, the GAMMA-11 has many "ease of use" devices and useful for nuclear medicine data analysis, however, the capacity of disk seems still unsatisfactory for complicated analysis, and we are going to equip higher capacity disk of 7.2 M words.