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A CO-OPERATIVE SURVEY WITH RESPECT TO THE QUALITY CONTROL OF GAMMA CAMERA WITH THE SIMULATED ANATOMIC LIVER PHANTOM. T.Matumoto T.A.Iinuma,K.Fukuhisa,N.Nohara,T.Yamasaki, Y.Tateno(National Institute of Radiological Sciences,Chiba) and T.Nagai(Gumma University Medical School,Gumma)

The purpose of the survey is to inform participating laboratories as to the quality of the results of their imaging procedure. In this study,the quality of the results of imaging by means of the gamma camera was tested,using the simulated anatomic liver phantom(SALP) which was sent from the IAEA. The SALP is a transmission phantom and contains no radioactivity. In order to obtain an image,it must be covered by a uniform extended radioactive source. This phantom was imaged by the procedure which the participant normally use for liver imaging. Next,the resultant image was evaluated for any areas which appear abnormal. Each of the participant was asked to decide whether or not an abnormality is present, using the four scores to express his/her confidence in the decision. The ROC-curve was derived from the scores of image reading and the area under ROC-curve was calculated.

In the case of the group ROC which consists of 38 laboratories, the area was 92% of the total area of the square. The ROC-area for gamma cameras evaluated in Japan, ranged from 53.8% to 100%.

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MULTI GAMMA DETECTORS AND RIA DATA PROCESSING SYSTEM BY PERSONAL COMPUTER.

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We are developed new RIA data processing system with 24 detectors gamma counter system (CRYSTAL5424) and PC-9801 VMO with 8 inch FD(1M x 2),5 inch Disk(20M x 1),Printer x 3,Micro buffer(64KB).

Sample counting time very shortend and on line RIA data processing system are very useful.

This programs in order to most effective use: receipt sheet,sample label,work sheet,quality control(RER.PP),data management(analysis. sort), data report etc. Total running time can be remarkble reduced by one fourth.

In this system are special merits as follow :

1),small computer use efficiently by micro buffer

2),receipt sheet and label are print out simulta -neously,these labels are used to stock tubes.

3),work sheet are print out former data.

4),Each data reports has been used label sheet. with paste,these are useful for patient chart.

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DEVELOPMENT OF BLOOD SAMPLING AND COUNTING SYSTEM FOR POSITRON EMISSION TOMOGRAPHIC STUDY. H.Sasaki, Y.Hirose*, K.Tanaka*, S.Miura, I.Kanno. Research Institute for Brain and Blood Vessels-AKITA, Akita, *Shimadzu Co., Kyoto.

Blood sampling and counting system for positron emission tomographic study was developed. It is necessary for positron emission tomographic study to measure short-lived RI activity accurately and speedily in order to obtain quantitative functional value. The system consists of a personal computer, printer, foot switch, indicator box, well counter, electric scale and bar code reader. And the system is able to communicate with a host computer and a blood gas analyzer using RS232C lines. Using the system, four studies can be carried out at the same time.

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DEVELOPMENT OF A 1.5-HEARTBEAT SYNCHRONIZER BY SYNCHRONIZATION OF HEART SOUNDS I AND II. K.Ichikawa,* N.Iwasaki,* F.Kishimura,** S.Taguchi,** *Department of Radiology, Dokkyo University School of Medicine, **Fukuda ME.

In recent years, a heart sound II-electrocardiographic R wave synchronizer has been developed and used in RI cardiac pooled image screening according to the equilibrium time method , in order to determine precisely a diastolic index by a left ventricular capacity curve. Since these procedures seem to be complicated and may be influenced by differences in features such as heart sound, frequency of electrocardiographic wave pattern, time constant, etc., we developed a 1.5-heartbeat synchronizer by synchronization of heart sounds I and II in the present study. By using an electrocardiographic R wave as the standard, a 1.5-heartbeat synchronizer was produced on the basis of a double synchronization system of phonocardiographic I and II sounds. In order to compare the system with the conventional system of heart sound II-electrocardiographic R wave synchronization, data from the same clinical case were collected in a processing system and analyzed by computer. The results show that our system makes it possible to obtain a simple and precise smooth left ventricular capacity curve of 1.5 heartbeat, unlike the conventional system, and it also allows more accurate determination of the diastolic index than that obtained so far.