Utilization of Whole Body Scintigram for the Assesseent of Peripheral Vascular Disease

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We have utilized a whole-cody scintigram to catch peripheral blood flow phisiologically and to catch distribution of vascular beds quantitatively and also for preoperative diagnosis, judgment of postoperative result and prognosis.

The whole-body scintigram was taken in the 147 cases of peripheral vascular diseases by means of rapid in the venous injection using Pho/Gamma scinticamera. Dosage of isotope was 5mCi 99m TC-H.S.A. in an adult and the scintigram was obtained 10 minutes after the infection and the entire procedure required 20 minutes in all.

We managemented the scintigram through a densitometer selecting the radioactive count at the cross section just above the aortic bifercation as 200% and the blood distribution ratio was calculated percentage in each part and vascular beds were caught quantitatively.

By this technique in aneurysm and an arteriovenous fistula, the location of the lesion and its state were well analyzed. On the contrally, in an obstructive disease of peripheral artery a lesion came out not so clearly on the scintigram comparing with a contrast dye angiogram, however, changes of blood flow in the extremity was caught quantitatively and it would be useful for postsympathectomy follow up. The scintigram obtained by this method is the arteriovenous compound scintigram and the distribution of the prpheral vessels comes out physiologically. The scintigram is inferior than contrast dye angiogram to diagnose a location of abstructive lesion, but it is possible to explain the vascular distribution quantitatively and it is parallel to clinical signs.

Thus, from the standpoint of surgical side, this method is very safe, easy and profitable method in the diagnosis and in the estimation of postoperative prognosis of vascular diseases.

Myocardial Scanning with TlCl in Patients Undergoing Irradiation of a Portion of the Heart

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The heart has generally been considered a relatively radioresistant organ. Our recent observation based on histo-pathological studies of heart tissue in experimental animals and patients subjected to autopsy who were received irradiation suggested, however, that the heart is more susceptible to irradiation than had been thought.

Myocardial scanning using ^{201}TlCl was then thought in order to evluate the possibility of myocardial damege from irradiation. Patients who had undergone extensive irradiation to mediastinal or palmonary areas were subjected to this study. Myocaldial scanning with ^{201}TlCl in 32 patients without heart disease were performed. Regional heart irradiation took place during radiation treatmet in 16 patients of 32. In 6 patients so tested, the scans demonstrated dminished radioactivity corresponding to the position of the irradiation portals in each case. Case histories of the 6 patients were presented together with the scan findings. There were no clinical or ECG findings attributable to radiation damage of the myocardium despite its scan appearance. However, the casual relationship of the irradiation could not be established definitely.

Our data were insufficient, but the findings reported should be of interest to radiotherapists. The mechanism producing diminished distribution

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of ^{201}TlCl following irradiation is not yet known, and further investigation is needed to evaluate doses required to produce diminished distribution and to assess its permanence and functional recovery.

Myocardial Scintigraphy with 201-Thallium Studies of Some Pediatric Cases by ECGgated Imaging Method

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Twenty eight children with cardiac diseases, ages between 4 month and 16 years old were examined by scintigraphy with intravenous injection of 1mCi 201-Thallium.

The purposes of this study are to find out (1) similarities and differences between the scintigrams of adults and those of children, (2) the correlation between electrocadiogram of right ventriclar hypertrophy and scintigraphic vesualization of right ventricle free wall, and (3) the relation between the coronary artery diseases and the scintigraphic images.

The scintigrams of the life sized myocardium at left anterior oblique position, taken between 10 min. to 60 min. after 201-Thallium injection, were studied in the method discribed by Cohen, and the ones which have RI activities of RV free wall more than +1, were selcted. Then, we summed up 500 flames of scintigraphic images, of 30 msec to 50 msec in enddiastolic phase and calculated the total counts at each ROI, which were placed at the outside of the LV free wall, the LV free wall, the septum, the right ventricular free wall and at the lung fields. The ratio of RV to LV (RV/LV ratio) was also discussed.

(Results)

(1) In two cases with functional murmur, the horse shoe shaped image was seen, which was seen, which was common in adult cases, and on the right hand side of that image, the right ventricle was visualized as the shape of half horse shoe.

(2) The cases with RVH electrocardiogram have definite scintigraphic visualization of RV, and RV/LV ratio is between 0.5 and 1.6.

The highest RV/LV ratio is found in a child with post operative TI, who received the radical operation of VSD, PH and CHF, and the RV/LV ratio in 4 cases with T/F come next.

(3) One case with obstruction and stenosis of three coronary artery branches, whose ECG is normal, showed the cold area at apex and RV was also visualized because of the ischemic image.

The relationship between the ECG findings of the cadiac hypertrophy and the images of myocardium, visualized by scintigraphy is of great interest.

Resting and Exercise Stress Scintigram with ^{201}Tl: Two Approaches for Management of Background Activity

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Myocardial scintigram with ^{201}Tl is useful for the detection of coronary heart disease. But inherent low myocardial-to-background ratios obscure the detailed evluation of images. Therefore, we made background-free myocardial images and calculated regional myocardial Tl-uptake index,

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