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ESTIMATION OF LEFT ATRIAL VOLUME BY RADIO-NUCLIDE ANGIOGRAPHY. K.Hayashida, T.Nishimura, T.Uehara, H.Ohmine, M.Kimura, and T.Kozuka. National Cardiovascular Center, Department of Diagnostic Radiology, Osaka.

With 20 cases of valvular disease, we attempted to measure left atrial(LA) volume by first pass method by radio-nuclide angiography(RNA). The real quantity of LA volume could be accurately by non-gated cardiac computed tomography(CCT).

Three parameter derived from RNA compared with LA volume from CCT: those were (1) The area of left atrium in films (2) LA peak count and 50 frames of LA count that those were corrected by counts of 0.1ml blood at equilibrium stage.

There was correlation between the area of LA and CTT with  $R=0.780$ , between corrected LA peak count and CTT with  $R=0.913$  and between corrected 50 frames of LA count and CTT with  $R=0.952$ .

Corrected 50 frames of LA count could be best indicator for LA volume and can be used for evaluation of volume change between pre and post operation.

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PERIPHERAL CIRCULATION IN SYSTEMIC SCLERODERMA BY Xe-133 CLEARANCE TECHNIQUE : EVALUATION OF TISSUE BLOOD PARTITION COEFFICIENTS. H.Mizutani, T.Hamagushi, T.Kitano, T.Nakagawa. Mie University School of Medicine. Tsu.

Increased Xe-133 clearance rate in sclerodermatous hand and normal clearance rate in sclerodermatous hand treated with oral steroid were reported in 19th annual meeting of J.S.N.M. Skin manifestations of scleroderma never imply increased tissue blood flow. Tissue blood partition coefficients, the other factor influence in calculation of tissue blood flow by Xe-133 clearance technique, were measured in scleroderma, scleroderma treated with steroid and normal control. Partition coefficients in pathological states are smaller than normal : sclerodermatous skin(0.28), sclerodermatous skin treated with steroid(0.45), normal skin(0.56), sclerodermatous subcutaneous tissue(3.18), sclerodermatous subcutaneous tissue treated with steroid(6.33), normal subcutaneous tissue(6.89). After correction of partition coefficients, tissue blood flow in sclerodermatous hand(6.42ml./100g.min.) and sclerodermatous hand treated with steroid(8.31ml/100 g.min.) revealed decreased than normal hand (10.58ml/100g.min.).

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SIGNIFICANCE OF EARLY AND DELAYED Tl-201 WHOLE BODY SCINTIGRAPHY IN PERIPHERAL ARTERIAL DISEASE. M.Mashimo, T.Miyamae, K.Suzuki, K.Nishimura, S.Kinoshita and Y.Dohi. Saitama Medical School. Saitama.

Tl-201 scan is one of useful methods to evaluated muscle perfusion with peripheral arterial disease as well as coronary arterial disease.

Early and delayed Tl-201 whole body scans were performed in 27 abnormal subjects during exercise using ergometer, and 35 normal subjects at rest (18 cases) and during exercise using ergometer (10 cases) and treadmill (7 cases) in the lower extremities, investigating significance of the redistribution of muscle perfusion.

It was calculated radioactivity rates of bilateral thighs and calves to whole body in early and delayed scan.

Results:

1. Tl-201 redistribution was seen to resting and insufficient exercising segments, not to full exercising segments.
2. It was suggested that redistribution rates (D/E) of all segments were inversely proportion to momentum.
3. Tl-201 redistribution was seen to affected side more than normal side in abnormal subjects.
4. It will be required to grasp exact momentum in the future.

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VASODILATOR THERAPY FOR CONGESTIVE HEART FAILURE(3)—THE EVALUATION OF THE NEW TECHNIQUE FOR MEASURING PERIPHERAL HEMODYNAMICS WITH THE USE OF RADIONUCLIDE. Y.Todo, M.Ohyanagi, K.Sakuyama, Y.Kawai, T.Iwasaki and M.Fukuchi. Hyogo College of Medicine. Nishinomiya.

To assess the effectiveness of the treatment for congestive heart failure(CHF), we evaluated the new technique for measuring peripheral hemodynamics with the use of in vivo Tc-99m labelled red blood cell. Isootope count rate of forearm were measured every 5sec, while venous occlusion technique was performed with inflating to 40 mmHg a collecting cuff around the upper arm. subsequently, forearm blood volume(FBV), blood flow(FBF), venous capacity(FVC), and vascular resistance(FVR) were calculated with these data by computer. We compared these indices between 10 normal subjects(Gr.1) and 10 patients with CHF(Gr.2). FBV of Gr.1 was higher than that of Gr.2(6.6±1.0 VS 4.9±1.0 ml/100ml,  $p<0.005$ ). FBF was also higher in Gr.1(4.4±1.2 VS 1.9±0.5 ml/100ml/min,  $p<0.001$ ). FVC was similar in both groups(3.2±1.2 VS 2.6±0.8 ml/100ml, NS). FVR was lower in Gr.1(19.6±5.6 VS 55.9±14.8 mmHg/ml/100ml/min,  $p<0.001$ ). Furthermore, we observed an improvement of these indices in cases with CHF on treatment with vasodilators(Nifedipine and Prazosine). We concluded that this technique seems to be useful for assessment of CHF.