
We studied the body distribution of TI-201 on exercise by TI-Whole Body Scintigraphy(WBS), because TI-201 was accumulated in proportion to the regional blood flow at the end of exercise. Exercise WBS was performed on 31 normal subjects, 23 patients with angina pectoris and 47 patients with myocardial infarction. Exercise testings were employed Master's double two-step test (M), supine and sitting ergometer stress testings(SU and SI). WBS was obtained using a gamma camera Omega 500 and analyzed by ADAC system W. We estimated Distribution(DI: the ratio of whole body counts to organ counts) from WBS. The following results were obtained. 1) In normal subjects, %D of the heart was similar at rest (R) and in the exercise stress testings. %D of the lung was R>M+>SU+SI. %D of the thigh was R<SU<SI. 2) In 5 patients which were performed on the same duration of exercise. In SU, the heart and the lung indicated low %D and the thigh indicated high %D compared with SU. 3) Duration of exercise was significant positive correlation with %D of the thigh in both SU and SI. 4) Duration of exercise was negative correlation with %D of the lung in SU.


To assess the haemodynamic background of exercise induced TI-201 accumulation in the lung, 33 patients with ischemic heart disease were evaluated in symptom limited maximal exercise stress test using supine bicycle ergometer. An ordinary stress TI-201 scintigram was taken 10 minutes after exercise and classified into 4 groups according to the intensity of lung activity by visual inspection. Haemodynamic parameters monitored during exercise included ECG, BP, cardiac output( dye dilution method). And these patients were subjected to another exercise test in same load on another day, in which the left ventricular ejection fraction(gated blood pool scintigraphy) and pulmonary arterial pressure(Swan-Ganz catheter) were measured. The high TI-201 activity groups compared with lower activity groups had short exercise time, higher pulmonary artery pressure at peak exercise, lower left ventricular ejection fraction at both rest and peak exercise. It was suggested that increased lung activity of TI-201 in exercise stress test may indicate pump failure of left ventricle.

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