

CLINICAL EVALUATION OF THE VERTICAL/HORIZONTAL RATIO USING PERFUSION SCINTIGRAPHY FOR THE QUANTITATIVE ESTIMATION OF PULMONARY HYPERTENSION
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A nontraumatic technique for the estimation of pulmonary arterial pressure in the patients with pulmonary hypertension was studied by perfusion scintigraphy of intravenously injected ^{99m}Tc -labelled macroaggregated albumin using scintillation camera and computer system.

The Upper/Lower lobe blood flow ratio (U/L ratio) was calculated as the ratio of the radioactivity between the upper and lower thirds of the right lung scintigram. Vertical/Horizontal image was obtained in the sitting or supine posture during injection of ^{99m}Tc -labelled macroaggregated albumin. The Vertical/Horizontal ratio (V/H ratio) was calculated by dividing U/L ratio of vertical image by that of horizontal image.

The mean pulmonary arterial pressure of the patients with the precapillary pulmonary hypertension is not correlated with U/L ratio of vertical image, but well correlated with V/H ratio.

This method appears to be useful in determining whether the pulmonary arterial pressure is elevated in patients with precapillary pulmonary hypertension

QUANTITATIVE ESTIMATION ON THE RIGHT VENTRICULAR OVERLOADING WITH THALLIUM-201 SCINTIPHOTOGRAPHY

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Thallium-201 myocardial scintiphotography and right cardiac catheterization were performed in 20 patients with congenital heart disease and valvular disease. These patients were given intravenous injection of 1.6-2.0mCi of thallium-201, and scintiphotograms were obtained from three different views (anterior, left lateral and left anterior oblique). The accumulation of radioactivity of the right ventricular free wall was calculated by left anterior oblique view of scintiphotograms, and was compared with right ventricular systolic pressure or mean pulmonary arterial pressure measured by right cardiac catheterization. In fourteen of 20 patients the right ventricular free wall was visualized on thallium-201 scintiphotograms. The right ventricular systolic pressure was more than 30-40mmHg and/or the mean pulmonary arterial pressure was more than 15-20 mmHg in these cases. The body surface radioactivity of thallium-201 decreased rapidly in initial phase and then gradually reached to plateau in the heart and the lungs, and increased gradually in the liver and the kidneys. RV/IVS and RV/Mediastinum ratio of thallium-201 radioactivity were used as an index of the right ventricular overloading. Correlation coefficient between the right ventricular systolic pressure and RV/IVS or RV/Mediastinum ratio were 0.81 and 0.77, respectively. Also, there were significant correlations between the mean pulmonary arterial pressure and RV/IVS or RV/Mediastinum ratio with the correlation coefficients of 0.86 and 0.71, respectively. Our results may suggest that RV/IVS or RV/Mediastinum ratio calculated from thallium-201 scintiphotograms are useful as an index which represent a grade of the right ventricular overloading.