Ventilation-Perfusion Lung Images in Aortitis Syndrome

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In eight patients suffering from aortitis syndrome, pulmonary ventilation and perfusion studies with $^{81}$Kr were made to determine abnormalities of the pulmonary arterial flow. Lung scans using $^{99}$Tc-MAA and pulmonary contrast angiography were further employed to evaluate the pulmonary arterial involvement in four cases which showed abnormalities on the $^{81}$Kr perfusion image.

The perfusion findings, such as filling defects and areas of diminished radioactivity, correlated well with obstructive or stenotic change of the pulmonary arteries on the contrast angiogram. In addition, the appearance of a fissure sign was often noted.

Results of ventilation studies appeared to be normal in all cases.

Nuclear angiocardiology with $^{99}$Tc-HSA was performed in conjunction with a gamma camera and a minicomputer for the measurement of the bronchial arterial flow in a patient with a perfusion defect. Three regions of interest were selected for dynamic curves: 1) over the area of lobar defect revealed by $^{99}$Tc-MAA lung scintigraphy; 2) the region of normal pulmonary blood flow; and 3) the heart.

The procedure clearly distinguished bronchial collateral from pulmonary arterial flow and showed considerable blood flow in the region of lobar defect, reflecting the increased flow to the affected lobes due to pulmonary arterial occlusion through bronchial arteries.

Perfusion Lung Scintigraphy in Patients with Ventricular Septal Defect


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The present study was undertaken: (a) to determine the scintigraphic findings with VSD; and (b) to determine if the extent of pulmonary hypertension can be predicted from the scintigraphic findings.

Twenty three patients were selected and divided into 3 groups by the extent of pulmonary arterial pressure. In 6 cases of the 1st group, the the ratio of pulmonary arterial pressure to systemic arterial pressure was below 0.45, in 5 cases of the 2nd group, the ratio was from 0.45 to 0.75 and in 12 cases of the 3rd group, the ratio was above 0.75.

For a quantitative evaluation of perfusion, upper to lower ratio and left to right ratio of the lung were calculated by computer processing method. The ratio was compared with 5 normal controls.

Decreased blood flow of the left lung was observed in 11/12 of patients of the 3rd group. Increased relative blood flow to the lower half of the right lung compared to the upper half was observed in 7/12 of patients of the 3rd group. A concave area of decreased perfusion slightly above the hilum corresponding to an enlarged pulmonary outflow tract was observed in all patients of the 3rd group. Perfusion defects in the lung were observed 6/12