

Lung Scanning after Various Position during Injection — The Influence of the Position of the Subject during Injection on the Distribution of Macroaggregated Radioalbumin Particles —

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As a series of radiological study of radiation pneumonitis or radiation fibrosis induced by the radiation therapy of the breast cancer, lung scanning with ^{131}I -MAA has been used to determine quantitatively the regional pul-

monary arterial blood flow. The influence of the body position of the subject during injection on the distribution of MAA particles in the lung was investigated and the results were discussed pathophysiologically.

Radioisotope Scanning of Lung by Dual Opposed Five Inch Crystals

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1) Methods: With the patient supine, 150-200 μCi of ^{131}I albumine aggregate was injected intravenously or into bronchial artery by means of Seldinger technique. Shimazu dual opposed five inch rectilinear scanners with 102 hole focusing collimators and photo-dot recording were used to obtain the scans. Dual counter was exactly opposed and addition technique was used. Thirty cases were scanned by these methods.

2) Area of positive shadow obtained by intravenous injection of MAA was in fair agreement with X-ray film, but lateral edge of scintigram was 1 cm smaller than pulmonary area on X-ray which was taken 2 m in distance.

3) In nodular pulmonary carcinoma located deep lung place and less than 2 cm in diameter, it was very difficult to visualize a lesion as a negative shadow by intravenous injection of MAA.

4) When MAA was administered into bronchial artery by means of Seldinger method, deposition of activity was coincided with

tumor stain on angiogram of bronchial artery. The activity was diminished gradually and till ninety-six hours it could be possible to obtain positive shadow on tumor area.

5) Two cases with early carcinoma in the main stem bronchus and with almost normal chest X-ray findings showed remarkable diminishing of activity in the regional lung fields by intravenous injection of MAA. These two cases were operated and hilar invasion to pulmonary artery, metastases and extra bronchial extension of carcinoma were not confirmed.

6) Gas mixture with 8% oxygen, 92% nitrogen was administered to unilateral side of lung by means of Carlens bronchial divided catheter, and during this procedure, MAA was injected intravenously. Significant decrease of activity was observed on hypoxic side.

7) The reason for the decreased deposition of the aggregate in lung field on the cases which had early small cancer in stem bronchus may be due to reflex decreased pulmonary artery perfusion secondary to lobar hypoxia as a result of bronchial obstruction by tumor.