

amount of shift to the diseased lung in lateral position was quite variable.

In peripheral type, pulmonary blood flow in supine position was found almost unchanged

after the radiotherapy in this series. The change in the amount of shift to the diseased lung was found increased in one case and unchanged in the remaining two.

Studies on Regional Disturbance of Respiratory Function in Various Pulmonary Diseases

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The present report describes about the detection of regional impairment of ventilation and perfusion in various pulmonary diseases.

As one of this purpose, pulmonary scanning after intravenous administration of ^{131}I -Macroaggregated Albumin has been used to study the regional distribution of pulmonary arterial blood flow in 159 cases with chronic pulmonary diseases. Chronic bronchitis with severe obstructive ventilatory disturbance, chronic pulmonary emphysema and severe pneumoconiosis cases show the lung scan revealing diminished radioactivity or diminished with absence of radioactivity in multiple areas. This information is suggested severe impairment of regional pulmonary arterial blood flow in these cases.

Inhalation scanning using ^{198}Au Colloid was added to investigate the correlation between

regional disturbance of ventilation and perfusion. Chronic bronchitis shows a good correlation between regional diminished radioactivity of inhalation scan and perfusion scan. Some cases of chronic pulmonary emphysema also reveal same good correlation, but another cases show more decreased radioactivity in inhalation scan than perfusion scan.

In addition, radioactive gas (^{133}Xe) was used to obtain information of dynamic change of regional impairment on ventilation and perfusion. The radioactive Xenon was administered either by inhalation or intravenous injection. Half time for Xenon clearance and 90% wash-out time were determined from the ^{133}Xe clearance curves following inhalation or intravenous injection. Extension of 90% wash-out time and half time for Xenon clearance were found in chronic bronchitis with obstructive ventilatory disturbance.

Relationship between Lung Scan and Operability of Lung Cancer

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A comparative appraisal was carried out on chest x-ray films and lung scans of 29 cases with primary lung cancer which were

taken ten days or less before pneumonectomy. Lung scanning were performed by isosensitive dual-probe scanner. A definite relation-