

and an elevation of the vascular resistance. The elevation of vascular resistance on the operated side causes a shift of pulmonary blood flow to unoperated side, and a more marked increase of perfusion in the upper lung field is thought to indicate that the reserve of pulmonary vascular bed is present more in the upper lobe. Thus the pulmonary circulation in immediate postoperative period is characterized by an organic decrease of

pulmonary vascular bed due to pulmonary resection and a functional decrease of pulmonary vascular bed in the remaining lung due to insufficient ventilation. From these results it became clear that the study of pulmonary perfusion utilizing pulmonary scintiscanning is useful in evaluating local changes of pulmonary function including ventilation.

### Comparative Study of Various Scannings by Means of Selective Injection of RI into the Bronchial Artery

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#### Purpose:

Since collateral circulation are often formed between the pulmonary circulatory system and bronchial system in cases of chronic pulmonary disease including lung cancer, it was intended to see how these collateral circulation would change when various scannings are made.

#### Method:

Selective bronchial angiography was followed by temporal scanning by means of placing detectors on the lesion and other regions, and then by pulmonary scintigraphy. The findings were compared with the findings of pulmonary scintigram by means of venous injection and with the findings of angiography including cine and VTR. The apparatuses used in this study were Shimazu's Sintiscanner Model 102 and Nippon Musen's Renogram Apparatus.

#### Results:

It was already reported at 7th Annual Meeting of the Japanese Society of Nuclear Medicine that collateral circulation are formed between the pulmonary circulation and sys-

temic circulation mainly represented by the bronchial artery in cases of chronic pulmonary diseases and that the defect of pulmonary scintigram by means of venous injection of  $^{131}\text{I}$ -MAA was verified not to be occlusion but to be shunt from the bronchial artery to the pulmonary artery by pulmonary scintigram by means of injection of  $^{131}\text{I}$ -MAA into the bronchial artery and by bronchial angiography (including cine and VTR).

In the present study, temporal scanning by means of injection of RIHSA into the bronchial artery was performed for the cases of same diseases and with the curve thus obtained the time of descent from the peak to the half way of asymptote was measured. As compared with that in normal regions, the time of descent was reduced in two out of four cases with large collateral circulation (shunt from the bronchial artery to the pulmonary artery) but contrarily it was elongated in three out of five cases with tumor stain. Moreover, remarkable elongation in time of descent was noted in a case of congenital heart disease with right to left shunt.