

ond ($FEV_{1.0}$) and respiratory resistance by the oscillation method (Rp). This result suggests that abnormal findings of the scintigraphy was thought to be a sensitive regional expression of airway narrowing or obstruction especially in the central airway. To elucidate the relation between the scintigraphic findings and the aerodynamic change in the airway, flow and volume patterns monitored at the mouth simultaneously done during the aerosol inhalation were analyzed. In the case of COPD, increased flow rate in short inspiratory phase followed by diminished flow rate in prolonged expiratory phase was evident, which suggest expiratory disturbance due to the obstruction with

compensational increase of inspiratory flow. In applying this abnormal flow pattern to the Weibel's morphometrical airway model, computational results indicated that excessive aerosol deposition in the central airway took place mostly in the inspiratory phase where the turbulent flow with high Raynald's number was characteristic.

It is concluded that the cnetralization of radio-aerosol deposition is a sensitive non-invasive indicator for abnormal aerodynamic change in the central airway, where expiratory distrubance due to the peripheral airway obstruction induced compensatory inflow turbulancy resulting hot spot formation on the inhalation scintigraphy.

Study on the Scanning Time of the RI Angiocardiography by Use of Gamma Imager

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Time-lapse camera (motor driven 35mm camera) has been used for dynamic imaging of RI angiography, but there is limitation of getting only one frame per one second. Recently more efficient camera such as rapid sequential, multifformat and gamma imager were developed for dynamic study. The quality of dynamic image in different exposure time was studied by using gamma camera and gamma imager.

I) Experimental data

1. Relationship between film density and saturation of the image: The size of the image was definit in the range of 0.6 to 1.8 of film density, but the image taken over 2 was saturated.

2. Relationship between film density and resolution of the image: The resolution with bar phantom is getting more poor over 2 of the film density.

3. Relationship between count density and

quality of the image: Good dynamic images can be got under the condition of exposure time over 0.2 seconds.

II) Clinical data

After bolus injection of 15-20 mCi of ^{99m}Tc -human serum albumin, dynamic cardiac images were taken under following condition of exposure time, such as 1, 0.5, 0.3 and 0.2 second by controlling the intenisty. In the quality of these images, there was no difference between the different exposure time.

From these data, we conclude that RI angiography is applicable even in children and the patients with tachycardia.

Moreover, it is possible to perform the scan with smaller doses of Radioisotope by controlling the intensity of the CRT in cases of ordinary exposure time.