The aerosol inhalation measurement with Tc-99m MISA (0.2-2 u) using ultrasonic nebulizer and a large area scinticamera combined computer has been employed to evaluate deposition and mucociliary clearance in regional lung area of 30 patients with pulmonary disease. Deposition rates and clearance rates were calculated for each lung areas divided into nine zones (whole lung, left, right, bilateral upper, middle and lower). Regional deposition rate of radioactive aerosol correlated with regional ventilation measured with Xe-133 (y=0.64x + 5.93, r=0.722, P<0.01). In whole lung field, disappearance constant (k) calculated from initial clearance curve of radioactive aerosol (m=1.27x10^-4, n=20, SD 1.01x10^-4) correlated with PaCO2 (r=0.533, P<0.05). But, no significant correlation were found between other data of pulmonary function (VC, FEV1.0%, RV/TLC, DLCO, PaO2), and mean wash-out time measured with Xe-133 method. In regional area, arbitrary divided into 24 clearance constant (i/a/x/t<0) found in periilar areas. This findings seemed to be good parameter of mucociliary dysfunction especially in the patients with COLD.

ON THE SIGNIFICANCE OF ESTIMATING REDISTRIBUTION OF PULMONARY PERFUSION IN PATIENTS WITH CORONARY ARTERY DISEASE.

To determine whether distribution of pulmonary perfusion can be used as a non-invasive method to estimate many of hemodynamic changes in patients with coronary artery disease (CAD). Tc-99m-MAA digital perfusion images (DPI) were evaluated in 42 pts. DPI were estimated by the 3rd intercostal space-to-base count ratio (pulmonary redistribution index, PRI). PRI mPA (mmHg) mPW (mmHg) EF (%) mPW/CO 0.7 12.8+3.3 2.5+0.4 1.07 12.8+3.3 2.5+0.4 0.7 13.7+1.8 56.6+12.8 1.5x0.3 *p<0.001; *p<0.01 The specificity of PRI for severe cardiac dysfunction (mPA/L30mmHg, mPW/20mmHg, EF<30%) was 1004(33.33%). PRI was considered abnormal if greater than 0.7. In pts with PRI<1 PRI correlated better with mPW/CO(r=0.75) than with mPW(r=0.68). The sensitivity of PRI for mPW/CO>2HRU was 914(10/11) and the specificity was 828(18/22). It is concluded that severe cardiac dysfunction can be easily detected by DPI. It is possible to estimate mPW/CO from PRI. CO:cardiac output, EF: ejection fraction, mPA: mean pulmonary artery pressure, mPW: mean pulmonary capillary wedge pressure.