

## A Measurement for the Regional Pulmonary Blood Distribution With TOSHIBA Gamma Camera

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Recently a lung profile scanning method for the evaluation of regional pulmonary blood distribution by using the scintillation counter named pulmography was devised by SASAMOTO and his colleagues. (Radioisotope Vol. 17 No. 11 1968) The principle of this measurement was applied for the study on pulmonary blood distribution with Toshiba Gamma Camera.

A patient who was injected 10 mCi of  $^{99m}\text{Tc}$ -MAA was laid on the measuring table in the supine position. The Gamma Camera with diversing collimator was placed under the table pointing to the patient's back.

Two rectangular R.O.Is called the split area which were characteristic of Toshiba Gamma Camera were arranged on both lung images,  $2 \times 0.5$  cm in size, on the memory scope. It is convertible as a size of  $7.5 \times 1.9$  cm on the chest wall 2 cm distanced from the surface of the collimator.

The motor driven top of the measuring table can be slid in a constant speed so that

the radioisotope activities trapped in the pulmonary capillaries in proportion to the regional blood flow passed over the split area from the apex to the base of the lung sequentially. Then the analogous curve which accurately reflected the incessantly changing counts within the split area was recorded on the chart.

The ratio of the upper lung blood flow to the lower (U/L ratio) was calculated by comparing each two areas surrounded with the analogous curve and the halves of abscissa.

The optimal condition for the measurement was determined as followed: the scan speed must be under 1 cm/sec when the time constant was 0.1 second and be under 0.25 cm/sec when the time constant was 0.3 second.

The parallel collimator will also be available if the thorax is not so large in size. The U/L ratio estimated from above mentioned method was not necessarily equal to that from the direct area counting method dividing the lung images into two portion geometrically.