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TRANSMISSION SCINTIGRAPHY FOR PULMONARY VENTILATION STUDIES. K.Ishii,K.Nakazawa, S.Yamada,K.Murata,J.Suzuki,K.Yoda, T.Matsubayashi,N.Yamamoto,A.Ishibashi Kitasato University School of Mmedicine. Kanagawa.

Transmission scintigraphy with 99m-Tc was performed for the study of pulmonary air distribution. We used 133-Xe gas to draw wash out curve for the study of pulmonary ventilation. Amplitude and phase image was obtained by phase analysis of the data of transmission scintigraphy.

The patient was placed in a supine position on the bed with flat source under his back. The scintilation camera was positioned in the anterior projection of his chest. The data was collected by computer and the dynamic images were photographed. In same position,wash out examination with 133-Xe gas was performed,continuously. The patients with pulmonary disordors,for example,lung tumor,lung cyst and lung emphysema were examined. In normal subjects, uniform gas distribution was observed and amplitude image showed up and down motion of diaphragma. In patients with pulmonary disordors,abnormal amplitude and phase images were obtained.

We conclude that transmission scintigraphy is very useful to study pre and post operative pulmonary ventilation in patients with pulmonary disordors.

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ESTIMATION OF REGIONAL PULMONARY VENTILATION USING PERFUSION LUNG SCINTIGRAM. T. Fujii, J. Hirayama, H. Kanai, K. Yano and M. Takizawa. The First Dept. of Internal Medicine and Div. of Radiology, Shinshu Univ. School of Medicine, Matsumoto.

Using perfusion lung scintigram, motion of the regional pulmonary area and lung edge during ventilation were analyzed in patients with various respiratory diseases. The image at deep inspiration (I) and expiration (E) were obtained after the intravenous injection of Tc-99m MAA (5~10mCi) using the scintillation camera coupling to a small digital computer. Radioactivity in each pixel (E and I) and numbers of pixels in both lungs (E_A and I_A) were calculated from the image of E and I. Changes of the regional pulmonary radioactivity during ventilation were calculated according to the expression as (E-I)/I, and the image of (E-I)/I was obtained too. Change of the pulmonary area during ventilation was calculated by the expression as $(I_A-E_A)/I_A$. Sum of the positive components of (E-I)/I in both lungs were correlated with vital capacity, and the image of (E-I)/I superimposed with edges of the lung at deep inspiration and expiration revealed the limits of motion of the lung edge during ventilation. These results suggest that this technique is useful to estimate the regional pulmonary ventilation and motion of the lung edge.