

Tc-99m Technegas scintigraphy to evaluate the lung ventilation in patients with oral corticosteroid-dependent bronchial asthma

Jiro FUJITA,* Kazue TAKAHASHI,** Katashi SATOH,** Hiroki OKADA,* Atsuko MOMOI,* Ichiro YAMADORI,**
Motoomi OHKAWA,** Jiro TAKAHARA* and Masatada TANABE****

**First Department of Internal Medicine, Kagawa Medical University*

***Department of Pathology, Okayama University Medical School*

****Department of Radiology, Kagawa Medical University*

*****Vice-president for Medical Affairs, Kagawa Medical University*

Bronchial asthma is a clinical syndrome characterized by the reversibility of airway obstruction. Recently it has been suggested that remodeling of the airway causes irreversible airway obstruction which may be responsible for the patient's symptoms. With this background, the purpose of the present study was to assess patients with corticosteroid-dependent asthma by Tc-99m Technegas scintigraphy (Technegas) in both planar and SPECT images. Twelve patients (7 females and 5 males aged 36–72 years with a median age of 60 years: 4 smokers and 8 non-smokers) with oral corticosteroid-dependent asthma were enrolled in this study. Lung ventilation scanning with Technegas in both planar and SPECT images, high-resolution computed tomography, and pulmonary function tests were performed in all patients. The results of Technegas scanning were graded and correlations with other clinical parameters were evaluated. Significant abnormalities were detected by ventilation scintigraphy with Technegas in patients with corticosteroid-dependent bronchial asthma even during remission. Our data demonstrate that airflow obstruction took place in patients with corticosteroid-dependent asthma even during remission. Technegas scanning appears to be a useful radiopharmaceutical for demonstrating airflow obstruction in patients with bronchial asthma.

Key words: steroid dependent asthma, Tc-99m Technegas, ventilation scintigraphy, planar images, SPECT images, subepithelial fibrosis