

## Original Article

A COMPARISON OF CHEST RADIOGRAPHS BETWEEN PATIENTS WITH PULMONARY *MYCOBACTERIUM KANSASII* INFECTION AND THOSE WITH *MYCOBACTERIUM TUBERCULOSIS* INFECTION IN THE INITIAL STAGE OF DISEASE

<sup>1</sup>Eri INOUE, <sup>2</sup>Mami SENOO, <sup>1</sup>Naohiro NAGAYAMA, <sup>1</sup>Kimihiko MASUDA, <sup>1</sup>Hirotohi MATSUI, <sup>1</sup>Atsuhisa TAMURA, <sup>1</sup>Hideaki NAGAI, <sup>1</sup>Shinobu AKAGAWA, <sup>1</sup>Emiko TOYODA, and <sup>1</sup>Ken OOTA

**Abstract** [Objectives] To elucidate the differences in affected lung segments between patients with pulmonary *M.kansasii* infection and those with *M.tuberculosis* infection in the initial stage of disease, we examined chest radiography images and CT scans. The initial stage of disease was defined as the period when less than one-sixth of the total lung area was affected by the infection, as visualized on chest radiography and CT.

[Subjects and Methods] One hundred eighty-four patients were diagnosed with *M.kansasii* infection between 1996 and 2010 and 835 patients, with *M.tuberculosis* infection between 2008 and 2009 at our hospital. The diagnosis was made on the basis of the results of sputum culture and/or bronchial washing. After excluding the patients with underlying lung diseases such as chronic pulmonary emphysema, interstitial pneumonia, and old pulmonary tuberculosis as well as those in advanced stages, 24 patients with *M.kansasii* infection and 62 patients with *M.tuberculosis* infection were included in this study. The affected segments of the lungs and the rates of cavity development were determined by using CT scans.

[Results] In patients with *M.kansasii*, 17 had an infected right lung, while 7 had an infected left lung. Additionally, in patients with *M.tuberculosis*, 58 had an infected right lung, 3 had an infected left lung, and 1 had a bilateral infection. In patients infected with *M.kansasii*, the upper lobes were affected in 22 cases and the lower lobes in 3 cases. In patients infected with *M.tuberculosis*, the upper, middle, and lower lobes and the lingular segment were affected in 41, 8, 24, and 1 cases, respectively. Upper lobe lesions were seen more frequently in patients with *M.kansasii* infection than in those

with *M.tuberculosis* infection ( $p < 0.05$ ). Cavity formation was identified more frequently in patients infected with *M.kansasii* (91.7%) than in those infected with *M.tuberculosis* (32.3%) ( $p < 0.001$ ). Cavitory lesions were more frequently localized to the apical, posterior, and apico-posterior regions (S<sup>1</sup>, S<sup>2</sup> or S<sup>1+2</sup>) of the upper lobes in patients infected with *M.kansasii* (86.4%) than in those infected with *M.tuberculosis* (35%) ( $p < 0.001$ ). A solitary lesion without endobronchial spread, which is characterized by centrilobular micronodules and tree-in-bud appearance, was more frequently demonstrated in patients infected with *M.kansasii* (45.8%) than in those infected with *M.tuberculosis* (6.5%) ( $p < 0.001$ ).

[Conclusion] Our study revealed that the apical, posterior, and apico-posterior regions of the upper lobes are vulnerable to infection by not only *M.tuberculosis*, but also *M.kansasii*. It is likely that *M.kansasii* might gain access to these regions via the airways and that its weak virulence may lead to higher localization.

**Key words:** Pulmonary *M.kansasii* infection, *M.tuberculosis* infection, Apical regions, Cavity

<sup>1</sup>Department of Respiratory Medicine, National Hospital Organization Tokyo National Hospital, <sup>2</sup>Department of Internal Medicine, Higashitotsukakinen Hospital

Correspondence to: Eri Inoue, Department of Respiratory Medicine, National Hospital Organization Tokyo National Hospital, 3-1-1, Takeoka, Kiyose-shi, Tokyo 204-8585 Japan. (E-mail: inouee@tokyo-hosp.jp)

## CLINICAL EXPERIENCE USING RIFABUTIN FOR TREATING INFECTION WITH *MYCOBACTERIUM TUBERCULOSIS* IN ELDERLY JAPANESE PATIENTS

Kozo MORIMOTO, Takashi YOSHIYAMA, Masayuki KUSE, Masao OKUMURA,  
Yuka SASAKI, Kozo YOSHIMORI, Hideo OGATA, Atsuyuki KURASHIMA,  
and Shoji KUDOH

**Abstract** [Objectives] To clarify whether rifabutin (RBT) can be used for treating tuberculosis in elderly Japanese patients in the clinical setting.

[Method] We performed a clinical chart review from Oct 2008 to Dec 2011, for patients who were diagnosed with tuberculosis and were prescribed rifabutin, at the Fukujuji Hospital (180 beds for respiratory medicine, including 60 for TB). Primarily, we focused on characteristics of patients, the cause for RBT indication, and success rate of treatment.

[Results] During the study period, 1129 patients were diagnosed with tuberculosis, and among these, 42 (3.7%) patients were prescribed RBT. Of these, 39 patients were included in this study (3 were excluded because their prescription was terminated within 2 weeks because of reasons other than adverse effects). In all, 69% patients were male. Mean age was 69 years, and mean body mass index was  $19.1 \pm 3.4$  kg/m<sup>2</sup>. RFP-related adverse effects were observed in 28 patients (72%; age, 73 years); these included gastrointestinal complications in 16, liver dysfunction in 7, skin rashes in 6, and renal dysfunction and thrombocytopenia in 1 each. Additional medication was required in 6 patients, and RBT-

resistant TB was noted in 5 patients (28%; age, 60 years). A success rate of 71.4% was observed in cases of RFP-related adverse effects, and that of 81.8% was observed in cases of other reasons. Except for the patient who experienced renal dysfunction, RBT could be used in all patients who experienced RFP-related adverse effects.

[Conclusion] RBT showed a relatively good success rate, even in patients who experienced RFP-related adverse effects. Thus, RBT could be an alternative in cases of RFP-related adverse effects, even in elderly patients.

**Key words:** *Mycobacterium tuberculosis*, Side effect, Rifampicin, Rifabutin

Department of Respiratory Medicine, Fukujuji Hospital, Japan Anti-Tuberculosis Association

Correspondence to: Kozo Morimoto, Department of Respiratory Medicine, Fukujuji Hospital, Japan Anti-Tuberculosis Association, 3-1-24, Matsuyama, Kiyose-shi, Tokyo 204-8522 Japan. (E-mail: morimotok@fukujuji.org)

A CASE OF MILIARY TUBERCULOSIS COMPLICATED  
BY A TUBERCULOUS ANEURYSM OF THE THORACIC AORTA

Yasuki UCHIDA, Mitsuhiro TSUKINO, and Isao WATANABE

**Abstract** An 85-year-old woman was admitted to our hospital with the chief complaint of fever. Antibiotics were not effective and a chest computed tomography scan revealed a diffuse micronodular shadow and thoracic aortic aneurysm. Subsequently, a bronchoscopy sputum culture was positive for *Mycobacterium tuberculosis*. Two months after the initiation of chemotherapy, the thoracic aortic aneurysm enlarged despite the improvement in lung findings. Tuberculous aneurysms are quite rare, but can be critical and acute. Therefore, caution should be exercised when treating such patients.

**Key words:** Miliary tuberculosis, Tuberculous aneurysm, Bronchoscopy

Department of Respiratory Medicine, Hikone Municipal Hospital

Correspondence to: Yasuki Uchida, Department of Respiratory Medicine, Kishiwada Municipal Hospital, 1001 Gakuhara-cho, Kishiwada-shi, Osaka 596-0822 Japan.

(E-mail: ranmalunlun@hotmail.co.jp)

USEFULNESS OF THORACOSCOPY UNDER LOCAL ANESTHESIA  
IN THE DIAGNOSIS OF TUBERCULOUS PLEURISY OCCURRING DURING  
INFLIXIMAB ADMINISTRATION: A CASE REPORT

Satoru ISHII, Yuichiro TAKEDA, Jin TAKASAKI, Masayuki HOJO,  
and Haruhito SUGIYAMA

**Abstract** We report the case of a 71-year-old man with rheumatoid arthritis. Infliximab administration was started as treatment for rheumatoid arthritis in January 2009. As he showed a positive result for the tuberculin test, he was treated with isoniazid for 9 months. He was subsequently referred to our department in October 2011 with a right-sided pleural effusion. When thoracoscopy was performed under local anesthesia, white and red protruding lesions of various sizes were observed in the pleural cavity. A biopsy revealed fibrous granulation tissue, and tissue culture and all sensitivity tests were positive for *Mycobacterium tuberculosis*. Therefore, thoracoscopy is useful for not only diagnosis but also determining

whether resistant tuberculosis is present.

**Key words:** Thoracoscopy under local anesthesia, Tuberculous pleurisy, Infliximab

Division of Respiratory Medicine, National Center for Global Health and Medicine

Correspondence to: Satoru Ishii, Division of Respiratory Medicine, National Center for Global Health and Medicine, 1-21-1, Toyama, Shinjuku-ku, Tokyo 162-8655 Japan.  
(E-mail: satishii@hosp.ncgm.go.jp)

## TUBERCULOSIS ANNUAL REPORT 2011

### — (3) Case Finding and Condition of Tuberculosis on Diagnosis —

Tuberculosis Surveillance Center (TSC), RIT, JATA

**Abstract** Tuberculosis (TB) case findings in 2011 were reviewed, particularly regarding how the cases were detected, the diagnostic delay, the proportion of far-advanced cavitory lesions, coexisting HIV infection and diabetes mellitus (DM), and drug susceptibility testing (DST) using the national TB surveillance database.

Among the 22,681 TB patients newly notified in 2011, 82.1% of the cases were detected when the patient sought healthcare or attended medical facilities because of other chief complaints.

Among the 17,519 pulmonary TB patients, 25.6% had only respiratory symptoms, 32.2% had both respiratory and non-respiratory symptoms, and 17.0% had only non-respiratory symptoms. The rest (24.5%) were asymptomatic.

The prevalence of patient's and doctor's delays among the 13,108 symptomatic pulmonary TB cases were analyzed. A large proportion—approximately 25–30%—of symptomatic pulmonary TB patients aged 30–59 years exhibited a total delay (i.e., the sum of the patient's and doctor's delays) of over 3 months. The proportion of patients with a patient's delay of over 2 months exhibited a similar tendency to that of the total delay, decreasing after 60 years of age. Moreover, the proportion of patients aged 65 years or more with a doctor's delay of over 1 month was higher than that of patients aged below 65 years. There was a high proportion—approximately 30%—of symptomatic smear-positive TB patients aged less than 60 years with a total delay of over 3 months, caused by a longer patient's delay. Meanwhile, the proportion of patients—approximately 15%—with a doctor's delay of over 1 month was almost stable across all age groups.

The proportion of cases with far-advanced cavities in the lungs of pulmonary TB patients increased from 1.5% in 1975, remained stable at approximately 2% from 1985–2007, and

decreased slightly thereafter until 2011 to 1.8%.

From 2007–2011, there were 304 newly notified TB cases with HIV infection, 263 (86.5%) and 41 (13.5%) of which were men and women, respectively, including 67 (22.0%) foreigners.

The proportion of newly notified TB cases with DM in 2011 was 13.7% (3,117/22,681) in total, 16.1% (2,250/3,117) in men, and 10.0% (867/3,117) in women.

The results of DST were obtained for 8,046 (73.7%) out of 10,915 culture-positive pulmonary TB cases through the surveillance system in 2011. In previously untreated cases, the proportions of multi-drug resistant TB, any isoniazid resistance, and any rifampicin resistance were 0.5%, 4.1%, and 0.8%, respectively; meanwhile, in previously treated cases, the proportions were 3.3%, 12.1%, and 4.2%, respectively. In previously untreated cases, the proportions mentioned above have been stable over the past 5 years (2007–2011). Meanwhile, in previously treated cases, the proportions have decreased over the past 5 years, except for those exhibiting any isoniazid resistance (11.4% in 2010 to 12.1% in 2011).

**Key words:** Tuberculosis, Delay to diagnosis, Bacteriologically-positive, Cavity, Complication, Anti-tuberculosis drug susceptibility test

Research Institute of Tuberculosis (RIT), Japan Anti-Tuberculosis Association (JATA)

Correspondence to: Tuberculosis Surveillance Center (TSC), Research Institute of Tuberculosis (RIT), JATA, 3-1-24, Matsuyama, Kiyose-shi, Tokyo 204-8533 Japan.  
(E-mail: tbsur@jata.or.jp)