

## COMPARISON BETWEEN QFT-3G AND T-SPOT IN THE CONTACT INVESTIGATION OF A TUBERCULOSIS OUTBREAK

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**Abstract** [Purpose] We experienced a tuberculosis outbreak in a business establishment. Contact investigation was carried out using both the QFT-3G and T-SPOT tuberculosis (TB) tests on the same subjects and the test results were compared.

[Method] The QFT-3G and T-SPOT tests were performed simultaneously at three time points during the contact investigation, so just after tuberculosis registration ( $n=14$ ), at 3 months post registration ( $n=24$ ), and at 2 years post registration ( $n=22$ ). Chest radiography was also performed for all subjects ( $n=31$ ) just after the registration.

[Results] From the contact investigation results, 2 cases of pulmonary tuberculosis and 14 of latent tuberculosis infection (LTBI) were detected. It was considered that the TB infection rate was high in the investigated group. The QFT-3G and T-SPOT positive rates, respectively, were 71% (10/14) and 29% (4/14) just after registration, 38% (9/24) and 4% (1/24) at 3 months post registration, and 27% (6/22) and 5% (1/22) at 2 years post registration, and deviated from each other significantly (concordance rate,  $\kappa$  0.16–0.27).

The positive rate of QFT-3G was significantly higher than that of T-SPOT, and QFT-3G could detect TB infection earlier than T-SPOT. The differences of test characteristics had no little impact on the diagnostic rate of LTBI.

[Discussion] It is important that the diagnosis and treatment of LTBI be evaluated in a comprehensive manner, after considering test characteristics of the interferon-gamma release assay and epidemiological information of TB.

**Key words** : Tuberculosis outbreak, Contact investigation, Latent tuberculosis infection (LTBI), Interferon-gamma release assay (IGRA), QFT-3G, T-SPOT

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# CLINICAL EFFECTS OF INTRAVENOUSLY ADMINISTERED LEVOFLOXACIN IN PATIENTS WITH PULMONARY TUBERCULOSIS: A RETROSPECTIVE STUDY

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**Abstract** [Objectives] Our aim was to investigate the clinical effects of levofloxacin (LVFX) administered intravenously to patients with pulmonary tuberculosis.

[Methods] We studied 65 patients hospitalized at The National Hospital Organization Tokyo National Hospital between January 2010 and December 2012. The patients did not have human immunodeficiency virus (HIV) infection, and received anti-tuberculous drugs intravenously due to the inability to receive drugs orally.

[Results] Twenty-seven patients were intravenously treated with isoniazid (INH), streptomycin (SM) and LVFX (HLS), and 38 patients were treated with INH and SM (HS). For both groups, mean age was very high ( $80.6 \pm 15.0$  years, HLS group;  $81.0 \pm 12.1$  years, HS group) and serum albumin levels were low ( $2.0 \pm 0.62$  mg/dl and  $2.1 \pm 0.42$  mg/dl, respectively). Most patients were administered oxygen (81.5%, HLS; 78.9%, HS). In radiological findings, most patients had bilateral (92.6%, HLS; 92.1%, HS) and widely spread (55.6%, HLS; 57.9%, HS) shadows. No significant differences were found between both groups in terms of the above data, except for sex. Almost 70% of all patients died; 51.9% of patients in the HLS group and 50.0% of those in the HS group died of

tuberculosis, while 18.5% of patients in the HLS group and 18.4% of those in the HS group died of the other diseases. There were no significant differences in the causes of death and the survival rates of both groups.

[Conclusion] Patients with pulmonary tuberculosis who were administered intravenous drugs were elderly and in poor general health. As such, mortality of these patients was very high. In this study, no clinical effects were found in the patients administered intravenous LVFX with INH and SM compared with patients treated with INH and SM.

**Key words** : Tuberculosis, Chemotherapy, Levofloxacin, Intravenous

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## SURGICAL TREATMENT FOR TWENTIES PATIENTS WITH PULMONARY NONTUBERCULOUS MYCOBACTERIOSIS RESISTING CHEMOTHERAPY

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**Abstract** [Subjects and Methods] We report five cases of surgical treatment for pulmonary nontuberculous mycobacteriosis (NTM) resisting chemotherapy in twenties. Of the five, one was male and four were female. They had cavitary or nodular lesion in their lung. After chemotherapy, partial resection or lobectomy was performed.

[Result] Though postoperative chemotherapy had continued for only 6 months or 1 year, there was no relapse/recurrence at more than 86 months in average after surgery.

[Consideration] In younger patients, NTM lesions in the lung are sometimes more localized than senior patients, therefore they can be removed as a smaller portion by the operation, and we can sometimes keep more pulmonary function of the patient.

[Conclusion] Surgical treatment for twenties patients with pulmonary nontuberculous mycobacteriosis resisting chemotherapy should be carried out aggressively at an early stage to resect a smaller portion of the lung and also decrease relapse/

recurrence after surgery.

**Key words :** Pulmonary nontuberculous mycobacteriosis, Twenties patient, Surgical treatment, Partial resection, Relapse/Recurrence

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Case Report

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A CASE OF LYMPH NODE TUBERCULOSIS ASSOCIATED WITH  
A FLUID-FILLED MASS IN THE THORACIC WALL DUE TO  
A PARADOXICAL RESPONSE TO THERAPY

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**Abstract** A 72-year-old man was admitted to our hospital in November 201X–1 because of fever and left cervical lymph node swelling. Chest computed tomography (CT) confirmed left swelling in the cervical lymph node and the axillary lymph node. We performed a lymph node biopsy and diagnosed tuberculosis of the lymph nodes (the left cervical region and the axilla). The patient was treated with anti-tuberculosis drugs (isoniazid, rifampicin, ethambutol, and pyrazinamide) in December 14, 201X–1. After initiating the therapy, the fever resolved, and his general conditions gradually improved. Thus, the patient recovered well because of the anti-tuberculosis therapy. Despite maintaining good general conditions, the patient experienced increasing swelling in his left hemithorax around the end of January 201X. A chest CT showed a clear fluid-filled mass in the left thoracic wall. Microscopic examination of the specimen obtained by CT-guided needle biopsy showed positive results for acid-fast bacteria and polymerase chain reaction for *Mycobacterium tuberculosis* indicated that the anti-tuberculosis therapy had failed. However, the patient's general conditions remained good, and the

results of blood laboratory tests were stable. Thus, we concluded that the mass was the result of a paradoxical response to the anti-tuberculosis therapy, and we reinstated the same therapy.

Although the fluid-filled mass recurred in the same region less than a month following the first anti-tuberculosis therapy, the mass spontaneously regressed when the therapy was reinstated. Thus, we confirmed that a paradoxical response was the cause of the clinical course in this patient.

**Key words:** Tuberculosis of lymph node, Tuberculous abscess, Paradoxical response

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## TUBERCULOSIS ANNUAL REPORT 2014

### — (4) Tuberculosis Treatment and Treatment Outcomes —

Tuberculosis Surveillance Center (TSC), RIT, JATA

**Abstract** In this article, we reviewed data regarding the previous treatment history, regimen types, and hospitalization status of tuberculosis (TB) patients newly notified in 2014. The duration of treatment and hospitalization, and the treatment outcomes of TB patients notified in 2013 were also evaluated by using a cohort analysis.

Of the 19,615 newly notified TB patients in 2014, 1,179 had a previous history of TB treatment. Approximately 90% of all TB patients aged 15–49 years were treated with isoniazid, rifampicin, pyrazinamide, and ethambutol (or streptomycin), which is the globally recommended regimen for initial treatment. However, the proportion of patients receiving the standard regimen decreased with their increasing age, and sharply dropped for those aged  $\geq 80$  years. Of 15,149 patients with pulmonary TB (PTB), more than 50% of those aged  $\geq 50$  years were hospitalized at the beginning of the TB treatment; the proportion of those hospitalized in each age group increased with the increasing age of the patients.

At the end of 2014, the median durations of hospitalization and treatment for all forms of TB notified in 2013 were 62 and 273 days, respectively. For cases notified in 2013, the rates of treatment success for patients with new sputum smear-positive PTB ( $n=7,600$ ) and for those on re-treatment ( $n=529$ ) were 49.6% and 41.8%, respectively. In addition, the

treatment success rates for foreign-born patients with new sputum smear-positive PTB ( $n=289$ ), and those on re-treatment ( $n=19$ ) were 59.5% and 36.8%, respectively. The rates lost to follow-up for patients with new sputum smear-positive PTB and those undergoing re-treatment were well below 5% when considering the total number of patients (both foreign-born and Japan-born), as well as only the foreign-born patients. The death rate among all new sputum smear-positive PTB patients was 21.6%, and the rates were relatively higher in the age groups 60–69, 70–79, 80–89, and  $\geq 90$  years (13.1%, 21.6%, 33.0%, and 46.7%, respectively).

**Key words** : Tuberculosis, Treatment history, Treatment status, Duration of treatment, Treatment outcomes

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