

## CLINICAL INVESTIGATION OF TUBERCULOSIS PATIENTS IN A GENERAL HOSPITAL LACKING A TUBERCULOSIS WARD IN WESTERN AICHI PREFECTURE

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**Abstract** [Background] With the recent decrease in the number of tuberculosis wards and increase in elderly tuberculosis patients with comorbidities, the role of regional referral hospitals has become more important in tuberculosis management.

[Objective] This study aimed to assess the current state of tuberculosis management and related issues in a general hospital lacking a tuberculosis ward.

[Methods] We retrospectively evaluated the clinical characteristics and course of patients diagnosed with tuberculosis by culture testing from April 2008 to March 2015 at Kainan Hospital.

[Results] A total of 146 patients (83 males and 63 females; mean age 76, range 18–94 years) were diagnosed with active tuberculosis. Of these, 129 were diagnosed with pulmonary tuberculosis (23 had pulmonary tuberculosis with pleurisy), and 17 patients were diagnosed with extrapulmonary tuberculosis. The chief complains were cough/sputum in 40 cases, fever in 24, and no symptoms in 36. Associated major comorbidities included diabetes mellitus, chronic kidney disease, and malignancy. In 33 patients, over 30 days were required to diagnose tuberculosis after initial evaluation. Drug-resistant strains were detected in 14 patients. 57 were

diagnosed with smear-positive pulmonary tuberculosis, and 66 were transferred to a tuberculosis hospital. Modify in anti-tuberculosis therapy due to adverse reactions were reported in 27 patients.

[Conclusion] This study evaluated the current state of tuberculosis management in our hospital. Further educational guidance regarding tuberculosis is needed for the hospital staff, and is important for improvement of tuberculosis management in our hospital.

**Key words:** General hospital, Tuberculosis ward, Delay in diagnosis, Treatment of tuberculosis, Comorbidity

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## Original Article

## COMPLIANCE RATE OF STANDARD TREATMENT REGIMEN AND OPTIMAL DOSE OF ANTI-TUBERCULOSIS DRUGS IN LATE ELDERLY PATIENTS WITH PULMONARY TUBERCULOSIS

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**Abstract** [Purpose] The proportion of the elderly in patients with pulmonary tuberculosis is increasing, and failure to complete the standard treatment regimen is not uncommon in these patients. We examined the compliance rate and problems of the standard regimen in the late elderly pulmonary tuberculosis patients.

[Methods] We reviewed the medical records of late elderly patients with pulmonary tuberculosis aged 75 or above who were smear-positive and treated in Kanagawa Cardiovascular and Respiratory Center between January 2011 and December 2014. Our retrospective study examined patient characteristics, imaging findings, laboratory results, and outcomes. The compliance rate of standard regimen during the hospitalization period was calculated. We compared the discontinuation rate and the incidence of adverse drug reactions by body weight equivalent doses of anti-tuberculosis drugs.

[Results] A total of 298 patients were included in this study, and 76% of those patients were aged 80 or above. Anti-tuberculosis therapy was not able to be initiated for 3 patients (1%), and treatment other than standard regimen was inevitably introduced at initiation in 21 patients. The remaining 274 patients (92%) were administered the standard regimen. Among them, at least one medication was

subsequently discontinued for 85 patients (29%), and the medication was changed due to drug resistance in 6 patients (2%). The remaining 183 patients (61%) complied with the standard regimen during hospitalization. In the comparison by body weight equivalent dose, significantly more patients discontinued their medication in the group using ethambutol with a higher standard dose per weight (37% vs. 21%,  $p=0.02$ ).

[Conclusion] Nearly 40% of the late elderly patients could not comply with the standard regimen. We may need to be more careful when calculating ethambutol equivalent dose.

**Key words:** Late elderly, Pulmonary tuberculosis, Standard regimen, Compliance rate, Body weight

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## TUBERCULOSIS DIAGNOSIS FOLLOWING A VISIT TO THE EMERGENCY ROOM

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and Hiroshi TAKAHASHI

**Abstract** [Objective] We aimed to evaluate the clinical characteristics of patients admitted to the emergency room (ER) and diagnosed with tuberculosis.

[Method] We conducted a retrospective study of patients aged  $\geq 16$  years admitted to the hospital between April 1980 and March 2015 and diagnosed with tuberculosis. We compared patient clinical characteristics and type of tuberculosis between ER and non-ER patients. We also compared the incidence of delayed diagnosis of tuberculosis between ER patients with and without respiratory symptoms. We compared the tuberculosis encounter rate and the time to diagnosis of tuberculosis in ER and non-ER patients.

[Results] A total of 255 patients, including 54 ER and 201 non-ER patients were enrolled in this study. The average age was higher in ER patients than in non-ER patients ( $71.7 \pm 16.3$  vs.  $63.3 \pm 20.3$  years,  $p=0.006$ ). The reasons for visiting the ER included acute conditions such as fracture of the lumbar spine, acute myocardial infarction, hemorrhagic gastric ulcer, brain infarction, and carbon monoxide intoxication, requiring immediate treatment. The time to diagnosis of tuberculosis in ER patients without respiratory symptoms ( $n=21$ ) was

approximately three times longer than that in patients with respiratory symptoms ( $n=33$ ) as urgent treatment is prioritized. The tuberculosis encounter rate was 1/1,800 for patients transported by ambulance and 1/22,000 for emergency outpatients. The time to diagnosis of tuberculosis for patients transported by ambulance was approximately 4–6 days longer than that for emergency outpatients or non-ER patients.

[Conclusion] Physicians should seek to rule out the possibility of tuberculosis in all patients admitted to the ER, even where more urgent clinical conditions are prioritized.

**Key words** : Tuberculosis, Emergency room, Ambulance, Emergency visit, Delay of diagnosis

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## LIVER TOXICITY DUE TO RIFAMPICIN MONOTHERAPY IN LATENT TUBERCULOSIS INFECTION

Kunihiko ITO

**Abstract** [Purpose] To investigate the outcome of rifampicin (RFP) monotherapy for latent tuberculosis infection (LTBI) and the incidence of RFP-induced liver toxicity.

[Method] We conducted a retrospective chart review of patients who received RFP monotherapy as LTBI treatment at the Daiichi Dispensary Clinic.

[Result] Of 61 patients who received RFP monotherapy, the treatment completion rate was 88.5%, self-termination rate was 3.3%, abandonment rate due to adverse drug effects was 8.2% (5 cases: 3 cases of skin eruption and 2 cases of liver dysfunction). Among the 2 cases of liver dysfunction, 1 was not associated with abnormal alkaline phosphatase (ALP) or gamma-glutamyl transferase ( $\gamma$ GTP) levels. Among patients with liver dysfunction who did not discontinue RFP monotherapy, no cases of severely abnormal ALP and/or  $\gamma$ GTP levels were reported.

[Conclusion] The incidence of liver toxicity due to RFP is lower than that observed with isoniazid, and liver dysfunction due to RFP was not always associated with abnormal of ALP and/or  $\gamma$ GTP levels.

**Key words** : Rifampicin, Isoniazid, Liver toxicity, Latent tuberculosis infection

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## CASE OF TUBERCULOSIS COMPLICATIONS DURING PREGNANCY LEADING TO AN INFECTION OUTBREAK

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**Abstract** A 31-year-old woman developed a constant cough during the 8th week of pregnancy and was diagnosed with bronchial asthma. She was prescribed prednisolone and inhaled corticosteroids. At 28 weeks of pregnancy, she showed worsening weight loss, fever, night sweats, hoarseness, and coughs. At 31 weeks of pregnancy, a scatter shadow and cavitary lesions were detected on the chest radiograph. Acid-fast bacilli smear test and tuberculosis (TB) polymerase chain reaction tests yielded positive results (G-8), and she was diagnosed with TB. Contact tracing and screening indicated 3 patients with TB onset and 18 patients with latent TB infection attributed to the initial patient, who infected a total of 36 people. In the present case, physicians were reluctant to order a chest radiograph for fear of harming the fetus and did not order sputum or interferon gamma release (IGRA) assay tests either. The diagnosis was delayed by 152 days, which was considered as a factor that caused the outbreak. The diagnosis of TB in a pregnant patient may be very challenging

because symptoms may initially be ascribed to the pregnancy, and delayed diagnosis and treatment of military TB can lead to the death of the mother and fetus. Consequently, to ensure early diagnosis and treatment, chest radiography and sputum and IGRA tests are recommended for pregnant women who have TB symptoms or are at high risk for TB.

**Key words:** Pulmonary tuberculosis, Tuberculosis during pregnancy, Group infection

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## TUBERCULOSIS ANNUAL REPORT 2014

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

Tuberculosis Surveillance Center (TSC), RIT, JATA

**Abstract** Tuberculosis (TB) surveillance data from 2014 was reviewed, with respect to modes of detection, symptoms at diagnosis, diagnostic delay, radiographic findings, comorbidity, and drug susceptibility test (DST) results.

Of the 19,615 newly registered TB cases, 82.8% were diagnosed while seeking care for, or during treatment of, other illnesses.

Of the 15,149 patients with pulmonary TB (PTB), 55.9% presented with respiratory symptoms, while 18.0% presented with non-respiratory symptoms, and 25.5% were asymptomatic.

Considerable delay to the initiation of treatment following the appearance of symptoms was observed among the younger symptomatic smear-positive TB patients. Over 35% of patients aged 35–59 years did not seek care for more than 2 months after the initial appearance of symptoms.

The proportion of PTB patients with advanced or far-advanced cavitation peaked at 49.9% among males aged 60–64 years, while it remained constant at around 25% among females in all age groups.

Positive HIV test results were obtained in 0.2% ( $n=45$ ) of the newly registered TB patients, among which 86.7% were male and 22.2% were foreign-born. In addition, 16.3% of

male and 10.5% of female newly diagnosed patients had diabetes mellitus.

Of the 10,259 culture-positive PTB patients, DST results were available for 74.5% of patients. In previously untreated patients, the proportions of multi-drug resistant TB, any isoniazid resistance, and any rifampicin resistance were 0.6%, 4.1%, and 0.8%, respectively; among previously treated patients, these proportions were 3.3%, 12.7%, and 3.8%, respectively.

**Key words** : Tuberculosis, Delay to diagnosis, Smear positivity, Cavities, Complications, Anti-tuberculosis drug susceptibility test

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