

TUBERCULOSIS TRANSMISSION WITH MULTIPLE SECONDARY PATIENTS

¹Takeo INOUE, ²Haruki KOYASU, and ³Satoru HATTORI

Abstract [Objectives] To elucidate TB transmission with multiple secondary patients (MSP) in comparison with a single secondary patient (SSP).

[Subjects and Methods] The subjects of this retrospective study were 10,088 TB patients registered in Aichi Prefecture between 1989 and 2003. Pulmonary TB was found in 8,629 patients, and 1,459 had extra-pulmonary TB. Bacteriological examination revealed sputum smear-positive (SPBP) in 3,332, sputum smear-negative bacillus-positive (SNBP) in 2,139, and smear-negative bacillus-negative (SNBN) in 3,158.

All registration files were reviewed to identify epidemiological links of patients. When linked patients with an interval of the dates of registration of less than 10 years were found, the first case was considered as the index case, and the other patients were regarded as secondary cases.

An index case rate (ICR) for a category of patients was defined as following; $ICR = NI/NA$, where NA : Number of TB patients in a category A, and NI : Number of index cases in category A. An epidemic source rate (ESR) was used instead of ICR when the index case and the TB patients in a category were smear-positive.

[Results] A total of 337 patients were considered as index cases. Sixty-nine patients had MSP, while 268 had a SSP. The ICRs for MSP were 1.74% for the SPBP patients, 0.33% for the SNBP patients, 0.06% for the SNBN patients, and 0.14% for the extra-pulmonary TB patients. These ICRs for SSP

were 5.43%, 1.73%, 1.14%, and 0.96%, respectively. The ESR differences with MSP were highly significant ($p < 0.001$) between patients aged 0–59 and those aged 60–99 (3.8% vs 0.5%), between patients with cavitory lesion and those with non-cavitory lesion (2.6% vs 0.4%), and between patients with large amount of bacilli and those with small amount of bacilli (2.9% vs 0.9%). These differences were also found in those with SSP.

[Conclusion] These findings suggest that TB transmission with multiple secondary patients is closely correlated with aging, cavitory lesion, and bacillary amount, and that no characteristic changes were found between index cases with multiple secondary patients and those with a single secondary patient.

Key words: Smear-positive pulmonary TB, TB transmission, Epidemic source rate, Aging, Cavitory lesion, Bacillary amount, Gender difference

¹Aichi Shikatsu Health Center, ²Aichi Ichinomiya Health Center, ³Aichi Toyokawa Health Center

Correspondence to: Takeo Inoue, Aichi Shikatsu Health Center, 114 Shikata Nishimuramae, Kitanagoya-shi, Aichi 481–0004 Japan. (E-mail: takeo_inoue@pref.aichi.lg.jp)

Original Article

CT SCREENING BEFORE TREATMENT OF LATENT TUBERCULOUS INFECTION
FOR THE DIAGNOSIS OF CLINICAL TB AMONG CONTACTS^{1,2}Takashi YOSHIYAMA and ¹Hideo OGATA

Abstract [Objective] To evaluate the value of CT scan for the detection of tuberculous diseases among persons who are suspected to be infected at the contact examination.

[Settings] Fukuji Hospital, Japan.

[Method] Retrospective review of the medical records of 22 persons who were normal with plain chest X-ray at an outbreak at a private school, with which total 46 TB cases and 93 infected persons were detected by either symptomatic visits or contact examinations done mainly at public health centers. Among the 44 persons who visited Fukuji Hospital, 4 persons were symptomatic visits, 3 persons were detected as TB cases by the contact examination at public health centers and 3 persons visited Fukuji Hospital for the purpose of contact examination before examinations at the public health centers. Eight of these 10 persons were with abnormal chest plain X-ray findings and the remaining two persons were normal with plain chest X-ray findings (group A). Among the 34 persons who were referred to Fukuji Hospital from public health centers as the infected person without diseases, one person showed abnormal chest plain X-ray and 33 persons showed normal chest plain X-ray (group B). Group A persons were examined in June and Group B persons were examined in

July.

[Result] The 2 persons in the group A were with abnormal CT findings. They were not diagnosed as TB by the CT findings but followed up after sputum examinations. Both of them were diagnosed as TB by the positive TB culture. Among the 33 persons in the group B, 20 persons were tested with CT scan at the examination done before starting treatment of latent tuberculous infection and six of these 20 persons were with abnormal findings and were judged as TB diseases.

[Discussions] In the case of outbreak with many TB cases and infected persons, CT should be considered for the detection of TB cases among contacts.

Key words: Latent tuberculous infection, CT, Clinical TB

¹Fukuji Hospital, Japan Anti-Tuberculosis Association (JATA), ²Research Institute of Tuberculosis, JATA

Correspondence to: Takashi Yoshiyama, Fukuji Hospital, JATA, 3-1-24, Matsuyama, Kiyose-shi, Tokyo 204-8522 Japan. (E-mail: yoshiyama1962@yahoo.co.jp)

INTRASPECIES DIVERGENCE OF 16S rDNA, ITS, *rpoB* GENE AND *hsp65* GENE SEQUENCE FOR *MYCOBACTERIUM LENTIFLAVUM*

¹Tomotada IWAMOTO, ²Kazue NAKANAGA, ²Norihisa ISHII, ³Shiomi YOSHIDA, and ⁴Hajime SAITO

Abstract [Objective] To clarify the genetic microheterogeneity of *Mycobacterium lentiflavum* and identify the predominant genotype.

[Materials and Methods] Clinical isolates of *M. lentiflavum* used in this study were obtained from sixteen patients of lung diseases. In order to assess their intraspecies variability, four gene fragments, from the 16S rDNA (1471 bp), 16S–23S ITS (282 bp), *rpoB* (306 bp), and *hsp65* (401 bp), were sequenced.

[Results] Intraspecies variabilities were found in all of the four targeting fragments. As multilocus sequence typing with these four targets, 16 clinical isolates were divided into 3 genotypes, i.e., MLST2, MLST3, and MLST4. Among them, MLST2 to which 12 clinical isolates belonged, was a predominant genotype. Three strains belonged to MLST3 and the remaining one strain belonged to MLST4. Drug susceptibility study indicated that there was no clear relation between sequence types and drug susceptibility.

[Conclusion] Multilocus sequence typing could aid in characterization and in better understanding of the epidemiology of *M. lentiflavum*.

Key words: *Mycobacterium lentiflavum*, Sequevar, Sequence type, Multilocus sequence typing, 16S rDNA, 16S–23S ITS, *rpoB* gene, *hsp65* gene

¹Kobe Institute of Health, ²Leprosy Research Center, National Institute of Infectious Diseases, ³Clinical Research Center, National Hospital Organization Kinki-chuo Chest Medical Center, ⁴Hiroshima Environment and Health Association

Correspondence to : Tomotada Iwamoto, Kobe Institute of Health, 4–6, Minatojima-nakamachi, Chuo-ku, Kobe-shi, Hyogo 650–0046 Japan.

(E-mail : kx2t-iwmt@asahi-net.or.jp)

Original Article

TB EPIDEMIOLOGY IN ELDERLY GROUP IN JAPAN

Hitoshi HOSHINO, Masako OHMORI, Kazuhiro UCHIMURA, and Yuko YAMAUCHI

Abstract [Purpose] To analyze the epidemiological situation of TB among the elderly in Japan.

[Methods] By using the data of TB surveillance, national survey statistics and national basic survey of life.

[Results] TB incidence in both sexes increased with age in all survey years. TB incidence among the jobless was higher than among employees in both sexes. TB incidence among female housekeepers was consistently lower than among other groups. TB incidence among both the employed and unemployed has declined rapidly in the last 15 years. The main mode of TB detection was the detection at clinics/hospitals irrespective of presence or absence of TB symptoms. The death rate was higher in cases with immunosuppressive therapy and cases with malignancy.

[Conclusion] Causes of higher TB incidence in the elderly

unemployed population should be analyzed. Better detection of TB by improving passive case-finding for TB symptomatic and high-risk groups at clinics/hospitals will be recommended. To reduce the death rate, early diagnosis of TB with immunosuppressive therapy could be strengthened, however its impact might be limited.

Key words: Tuberculosis, Incidence, Elderly group, TB death

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

Correspondence to : Hitoshi Hoshino, Research Institute of Tuberculosis, JATA, 3-1-24, Matsuyama, Kiyose-shi, Tokyo 204-8533 Japan. (E-mail : hhoshino@jata.or.jp)

Case Report

**A CASE OF MILIARY TUBERCULOSIS DURING TREATMENT WITH
INFLIXIMAB TO RHEUMATOID ARTHRITIS**

Hirokazu TANIGUCHI and Saburo IZUMI

Abstract A 70-year-old woman afflicted with rheumatoid arthritis was consulted another hospital because of fever and abnormality in chest X-ray. She had been treated with methotrexate and infliximab for seven months. She was diagnosed as methotrexate-induced pneumonia, and was administrated large therapeutic doses of corticosteroid, but finding of her chest X-ray exacerbated. Her sputum examination was positive for *Mycobacterium tuberculosis* complex by nucleic-acid amplification test, and she was diagnosed as miliary tuberculosis. She was treated with INH, RFP, EB, and PZA, and showed good clinical response to treatment. When infliximab is prescribed, we have to bear in mind possible complication

of tuberculosis.

Key words: Infliximab, Tuberculosis, Miliary tuberculosis, Rheumatoid arthritis

Department of Internal Medicine, Toyama Prefectural Central Hospital

Correspondence to : Hirokazu Taniguchi, Department of Internal Medicine, Toyama Prefectural Central Hospital, 2-2-78, Nishinagae, Toyama-shi, Toyama 930-8550 Japan.
(E-mail: tan@tch.pref.toyama.jp)