

Original Article

CLINICAL ANALYSIS OF CASES WITH MULTIDRUG-RESISTANT TUBERCULOSIS
— Inpatients at National Hospitals in Kyushu between 1998 and 2003 —

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Abstract [Purpose] Clinical analysis of inpatients with multidrug-resistant tuberculosis in Kyushu.

[Object and Method] Clinical analysis of fifty-six patients with multidrug-resistant tuberculosis, who were admitted between 1998 and 2003, at 12 national hospitals in Kyushu was performed retrospectively.

[Results] The average age was 62.1 ± 18.6 years, with an age range of 21 to 95 years. There were 44 males and 12 females. Seven of the 14 patients, who were under 49 years old, had not received treatment previously. Twenty nine patients had underlying diseases, which included 10 (17.9%) diabetes mellitus, 5 (8.9%) hepatic disease, and 4 (7.1%) renal insufficiency. Clinical classification of the cases were 54 pulmonary and 2 extrapulmonary tuberculosis. There were 41 (75.9%) bilateral lesions of the lung. In 8 cases, strains were resistant to only 2 drugs (isoniazid, rifampicin). In 27 cases, strains were resistant to at least 5 drugs. The prognosis was as follows: In 27 patients who were resistant to at least 5 drugs, six patients (22.2%) converted to negative on culture and 10 patients (37.0%) died. In 29 patients who were resistant to less than 5 drugs, seventeen patients (58.6%) converted to negative on culture and 6 patients (20.7%) died. Surgical operation was performed in only 7 cases. The sputum smear and culture of 2 surgical patients, who had poor control of

diabetes mellitus, became positive thereafter. The other 5 surgical patients were in remission with negative cultures.

[Consideration] Half of the patients who were under 49 years old had not received treatment previously. More than half of the patients had underlying diseases. Patients, who were resistant to at least 5 drugs showed a lower bacteriological negative conversion-rate and higher death rate than patients who were resistant to less than 5 drugs.

Key words: Multidrug-resistant tuberculosis, Drug resistance, Outcome of treatment

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THE ANALYSIS ON THE RESULTS OF TB SKIN TEST IN MEDICAL STUDENTS

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Abstract [Purpose] To obtain baseline, medical students are recommended to make two-step tuberculin skin tests when they are in good physical health, as the baseline information to detect later tuberculosis infection. We investigated a method to obtain appropriate baseline data, because the accurate method of this test was not yet established.

[Subjects and methods] The subjects were the tuberculin skin test results of 1066 medical students who were subjected to different methods of tuberculin skin test (58% tested once, 37% tested twice, and 5% tested three times). We retrospectively made multi-dimensional analysis about these data.

[Results] i) In the first tuberculin skin test, 20% of the results were negative. ii) When repeated with intervals between one to four years, the diameters of erythema gradually increased due to the effect of prior tests. iii) The difference in size of erythema between the first tuberculin skin test and the repeated tests was less than 10 mm. iv) When two-step tuberculin skin test was repeated, significant increase in the diameters of erythema were demonstrated in the second test ($P=0.0048$). v) Regarding booster phenomenon, it apparently lasted for one year, and it also remained after two years or over.

[Consideration] Thus, repeated tuberculin skin tests performed in good physical health was difficult to interpret

measuring the diameters of erythema to detect tuberculosis infection. Thus, the diagnostic value of a tuberculin skin test was reduced while it requires unnecessary time and expenditure for its implementation.

[Conclusion] It seems to be appropriate for medical students to make a two-step tuberculin skin tests, soon after their enrollment, and the results should be used as a baseline to detect possible later tuberculosis infection.

Key words: Medical students, Preventive measures against tuberculosis, Tuberculin skin test, Booster phenomenon, Baseline

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————— **Short Report** —————

COMPARISON OF SPUTUM POSITIVE RATE BETWEEN
BILATERAL VS. UNILATERAL LUNG TUBERCULOSIS

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Abstract [Purpose] Comparing sputum smear/culture positive rate between unilateral lung tuberculosis and bilateral ones with similar extent of lesion.

[Subject and Method] Retrospective review of patients' records in the author's hospital from Jan. 1/2002 to Sep. 30/2003.

[Results] In unilateral (N=58) and bilateral (N=82) lung tuberculosis of "Gakkai classification" (=chest X-ray classification of lung tuberculosis according to the Japanese Society for Tuberculosis). II 2 (cavitary lung tuberculosis with moderate extent), positive rates of the initial sputum investigation by smear/Ogawa culture/MGITTM were, 84.6% vs. 74.0%/88.5% vs. 93.2%/93.5% vs. 97.1%, respectively, and no significant difference was found. Similarly, in Gakkai classification III 1 (non-cavitary lung tuberculosis with minimal extent) and in Gakkai classification III 2 (non-cavitary lung tuberculosis with moderate extent), no significant differences

were found in sputum bacilli positive rates between unilateral and bilateral lung tuberculosis.

[Conclusion] Sputum smear and culture positive rates of bilateral lung tuberculosis showed no significant differences with that of unilateral one with similar extent.

Key words: Pulmonary tuberculosis, Unilateral, Bilateral, Smear, Culture

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Case Report

**A CASE OF PULMONARY *MYCOBACTERIUM AVIUM* COMPLEX DISEASE,
SHOWING HYPERSENSITIVITY PNEUMONITIS-LIKE DIFFUSE SHADOW**

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¹Hideki YOTSUMOTO, and ²Akira HEBISAWA

Abstract A 59-year-old man who had just completed therapy for tuberculosis, fell down in sauna and was admitted to a hospital. As acid-fast bacilli were positive (Gaffky 2) in sputum and residual cavity was shown in the right upper lobe on chest X-ray, he was transferred to our hospital. In spite of starting antituberculous chemotherapy, small nodular shadows appeared diffusely and were changed into ground-glass appearance on chest X-ray. The trans-bronchial-lung-biopsy revealed alveolitis mainly composed of lymphocyte infiltration with non-caseous epithelioid cell granulomas and organization which are likely to appear in hypersensitivity pneumonitis. As the acid-fast bacilli were identified as *Mycobacterium avium*, clarithromycin and kanamycin were added to the chemotherapy, but no improvement was observed in clinical feature. Corticosteroid therapy was further added and clinical feature improved immediately. Although we did not examine the

presence of *Mycobacterium avium* in the water of sauna bath, we suspected this case as Hot Tub Lung based on clinical features and the response to treatment.

Key words: Hot Tub Lung, Hypersensitivity pneumonitis, Pulmonary *Mycobacterium avium* complex disease

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————— The 80th Annual Meeting Open Lecture —————

RISK MANAGEMENT OF TUBERCULOSIS IN MEDICAL INSTITUTIONS

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Abstract As tuberculosis incidence is still high (23.3 per 100,000 in 2004) and infection control measures in hospitals are not so complete that about 8 or more nosocomial group infections are reported annually in these 10 years in Japan. Another reason of rather frequent occurring of group infection is that actual status of tuberculosis infection of medical staff remained unclear for long time because diagnosis of tuberculosis infection is almost impossible due to so wide and so long implementation of BCG vaccination in this country. To improve the present circumstances, the author has discussed on the recent theory and control measures of infection control introducing examples of nosocomial infections and results of

studies carried out in many countries in these 10 years.

Keywords: Risk management, Tuberculosis, Infection, Nosocomial tuberculosis infection, Infection control, Airborne infection

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