Original Article

AIRBORNE INFECTION ISOLATION ROOM FOR TUBERCULOSIS IN JAPAN

Takashi YOSHIYAMA and Seiya KATO

Abstract [Background] In Japan, all sputum smear positive tuberculosis patients are admitted to the hospital for the reduction of risk of infection to the general public. For the reduction of the risk of hospital acquired infection, airborne infection isolation (AII) room has come to be used. However, current situation of AII room for tuberculosis in Japan has not been investigated.

[Objective] To clarify the current situation of AII rooms for tuberculosis in Japan.

[Method] A questionnaire survey to the hospitals with beds for infectious tuberculosis under the infectious diseases control law (TB beds), hospitals without beds for infectious tuberculosis but with public support for AII rooms for the treatment of tuberculosis (model beds), hospitals with beds for infectious diseases except for tuberculosis under the infectious diseases control law (infectious diseases beds), and other large scale general hospitals. The number of AII rooms at each prefecture was compared with the number of necessary beds for infectious tuberculosis.

[Result] Among 196 hospitals with TB beds, 92 hospitals (47%) replied the survey. Among 80 hospitals with model beds, 32 hospitals (40%) replied. Among 264 hospitals with infectious diseases beds, 124 hospitals (47%) replied and among 1433 other hospitals, 123 hospitals (9%) replied. Among 1827 beds for tuberculosis in the 92 hospitals with TB beds, 1328 beds were AII rooms. Among 32 hospitals with model beds, 70 beds in 26 hospitals were beds in AII rooms. Among 124 hospitals with infectious diseases beds, 104 hospitals were with AII rooms and among these 104, 165 beds in AII rooms in 35 hospitals were ready to treat infectious tuberculosis cases. In 123 other hospitals, 31 hospitals were with AII rooms and 35 beds in AII rooms in 7 hospitals were ready to treat infectious tuberculosis cases.

In 2017, the number of sputum smear positive tuberculosis was 6359 and the number of necessary beds for infectious tuberculosis by prefectures was calculated to be 1598 and this number was equal to the number of beds in AII rooms where tuberculosis can be treated with reply to our survey. In 30 prefectures, beds in AII rooms in hospitals where tuberculosis is treated were more than necessity, but in six prefectures, the number of beds was estimated to be less than the necessity even after adjustment of the incompleteness of the survey. In the 92 hospitals with beds for tuberculosis, four hospitals were not treating infectious tuberculosis cases and 12 hospitals planned to stop treatment of infectious tuberculosis.

[Discussion] Although the number of beds for infectious tuberculosis in AII room is overall more than necessary, there are prefectural diversity and increase of stopping admission treatment of infectious tuberculosis cases among hospitals with beds for tuberculosis and with AII rooms is alarming. Discussion is necessary for the future of tuberculosis beds in AII rooms.

Key words: Tuberculosis, Airborne infection isolation room, Resource allocation

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Original Article

CONTACT INVESTIGATION USING THE QFT-3G TEST FOR ELDERLY INPATIENTS OF A MENTAL HOSPITAL

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Abstract [Purpose] To identify subjects with latent tuberculosis (TB) infections (LTBIs), we used a contact investigation at a mental hospital where many elderly patients had been admitted.

[Methods] An elderly patient who was admitted to the mental hospital was diagnosed with lung TB. Considering the infected patient as the index case, we planned a contact investigation. Among the 157 inpatients who were subjects of the contact investigation, 120 were older than 60 years of age, and this cohort represented approximately 80% of all inpatients. We schemed to perform the QFT-3G test on the younger inpatients and elderly inpatients who were over 60 years, rather than X-ray examinations for 2 years.

[Results] Of the 149 inpatients who underwent the QFT-3G test, the QFT-3G test produced positive results in 35 inpatients (28 over 60 years) and equivocal results in 12 inpatients (9 over 60 years). No subjects had active TB. We regarded equivocal results as those that were evaluated as negative, in reference to the previous papers[1)2)]. The QFT-3G positive rate, which was obtained from the contact investigation, was compared with the IGRA positive rate by age group[2)]. Depending on these consideration LTBI treatment was recommended to the inpatients who were 69 years of age or younger and had positive results. Finally, 14 inpatients had received LTBI treatment, seven of whom were over 60 years.

[Conclusion] We distributed equivocal QFT-3G test results and determined LTBI treatment indications in reference to previously published papers[1)2)]. The sensitivity of the QFT-3G test may decrease for elderly people; nevertheless, contact investigations that use the QFT-3G test facilitate LTBI screening.

Key words: Elderly people, Contact investigation, LTBI, QFT-3G, Previous TB infection, Recent TB infection

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A CASE OF MILIARY TUBERCULOSIS PRESENTING WITH TEMPORARY WORSENING OF SKIN LESIONS DURING ANTI-TUBERCULOSIS TREATMENT

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Abstract A 76-year-old woman visited a local hospital for the management of refractory skin eruption. She was diagnosed as having miliary tuberculosis with cutaneous tuberculosis, and prescribed anti-tuberculous drugs. No resistance was found in the drug sensitivity test for the bacilli, and both lung and skin lesions were once improved. However, skin lesions were recurred despite of continuation of the treatment, and she was referred and admitted to our hospital. Subcutaneous nodules and abscesses were observed, and acid-fast bacilli smear and TB-PCR for the specimen from abscess were positive, but culture was negative. It was considered to be a temporary deterioration due to paradoxical response (caused by local allergic reaction to *Mycobacterium tuberculosis* component (dead bacteria) during treatment for tuberculosis), and the skin lesions were improved by continuation of the anti-tuberculous drugs without any changing the medication. Even after that, multiple skin lesions developed and all specimens from the lesions were positive for acid-fast bacilli smear, but negative for culture, indicating that no viable bacteria were present. All lesions were improved only by continuation of the anti-tuberculous drugs. We reported a rare case of miliary tuberculosis who developed recurrence of cutaneous tuberculosis due to paradoxical response.

Key words: Cutaneous tuberculosis, Miliary tuberculosis, Paradoxical response

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Case Report

TWO CASES OF TUBERCULOUS UVEITIS WITH MYODESOPSIA

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Abstract We report two cases of tuberculous uveitis referred to the Department of Ophthalmology at our hospital for definitive diagnoses. Case 1 is that of a 50-year-old woman who had been experiencing bilateral uveitis with myodesopsia of unknown origin for three months. The tuberculin skin test and interferon-gamma release assay (IGRA) were positive, and the chest radiograph showed a centrilobular granular shadow in the right lung. Subsequently, pulmonary tuberculosis (TB) was confirmed on bronchoscopy. Case 2 is that of a 37-year-old woman who had been experiencing right uveitis with myodesopsia for four months. Similar to the first case, the tuberculin skin test and IGRA were positive, and the chest radiograph showed a centrilobular granular shadow in the right lung. Subsequently, pulmonary TB was confirmed with positive sputum results. Anti-TB chemotherapy as the first-line regimen, consisting of rifampicin, isoniazid, ethambutol, and pyrazinamide, was administered to both patients for six months. Although both patients recovered with anti-TB treatment, Case 2 required an additional treatment with intraocular steroid injection and retinal photocoagulation. Tuberculous uveitis should be considered in the differential diagnosis of uveitis of unknown origin, and IGRA is useful in the diagnosis of the condition. Coordination between an ophthalmologist and a pulmonologist is necessary for early and accurate diagnosis of tuberculous uveitis.

Key words: Tuberculous uveitis, Pulmonary tuberculosis, Tuberculous retinitis, Interferon-gamma release assay (IGRA)

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Case Report

AN AUTOPSY CASE OF ACUTE RESPIRATORY DISTRESS SYNDROME ASSOCIATED WITH NON-TUBERCULOUS MYCOBACTERIAL DISEASE

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Abstract The case was 63 years old, male. At the age of 20 and 47, he had the treatment history for pulmonary tuberculosis. He was admitted to our hospital due to general fatigue, dry cough and progressive dyspnea for a few days. He was diagnosed with severe pneumonia complicated with acute respiratory distress syndrome, and even after intensive care under tracheal intubation with antibiotics, and steroid pulse therapy, he died five days after admission. In autopsy lung tissue, diffuse epithelioid granuloma with necrosis and diffuse alveolar damage were seen, and *Mycobacterium avium* was detected in sputum, blood and lung tissue.

Key words: Non-tuberculous mycobacteria (NTM), Acute respiratory distress syndrome (ARDS)

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