

COMBINED USE OF INTERFERON-GAMMA RELEASE ASSAY AND LOW-DOSE COMPUTED TOMOGRAPHY FOR TUBERCULOSIS SCREENING PROGRAM OF HEALTH CARE WORKERS

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Abstract [Objective] To evaluate the value of the interferon-gamma release assays and low-dose computed tomography for the pulmonary tuberculosis screenings program of health care workers.

[Design] For the pulmonary tuberculosis (TB) screenings program, T-SPOT®.TB (one of interferon-gamma release assays: IGRA) were performed on 332 health care workers (HCWs) with normal chest roentgenogram and without the history of TB treatment. Low-dose computed tomography (LDCT) was also performed on IGRA positive HCWs.

[Results] Ten of 332 subjects were positive IGRA. LDCT was performed on IGRA positive 10 subjects. Abnormal findings were noted in 2 of 10 subjects by LDCT.

One had CT findings compatible with active TB and finally diagnosed as active TB. Another had scarring shadow at right S⁵ and lingular segment. Nine of 10 IGRA positive subjects were judged as latent tuberculosis infection (LTBI). Three

hundred twenty-one subjects with negative and borderline IGRA of 332 HCWs were judged as not infected with TB.

[Conclusion] Combined use of IGRA and LDCT for tuberculosis screening program of HCWs was found to be effective for early diagnosis of TB, accurate diagnosis of LTBI and judgment of non-infective subjects.

Key words: TB screening program, Interferon-gamma release assay, Low-dose computed tomography

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ANTI-TUBERCULOSIS THERAPY AND PARADOXICAL RESPONSE WHEN TUBERCULOSIS DEVELOPS UNDER THE INFLUENCE OF BIOLOGICS FOR RHEUMATOID ARTHRITIS

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Abstract A paradoxical response is designated as the clinical or radiological worsening of pre-existing TB lesions or the development of new lesions during appropriate anti-TB treatment. Tuberculosis bacilli have no toxin and the organism apparently does not produce any toxins, so the virulence depends on a response to the host immune reaction.

According to our report, the annual reported numbers of tuberculosis cases and death did not decrease during biologics treatment in Japan.

We have been monitoring and analyzing all the TB cases activated during adalimumab treatments in Japan. According to the analysis, there was no TB related death and severe sequelae in patients with lung tuberculosis without extra pulmonary TB; TB related deaths were caused not by delays of diagnosis and therapy but by the paradoxical response following miliary TB. Paradoxical response after abrupt cessation of anti-TB treatment is caused by immune activation to cell components despite TB bacilli are alive or dead. So, we concluded that the abrupt cessation of anti-TNF agents after

TB development could activate immune response causing paradoxical response, which lead to severe sequelae and death, and that continuation of anti-TNF therapy for rheumatoid arthritis in patients with active tuberculosis reactivated during anti-TNF medication is more beneficial than its cessation concerning not only clinical and radiological but also bacteriological outcomes.

Key words: Biologics, Anti-TNF therapy, Paradoxical response, Miliary tuberculosis

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IMPORTANCE OF HEALTH CARE FOR THE ERADICATION OF TUBERCULOSIS

— Efforts Implemented in Nishinari Ward, Osaka City —

Kenji MATSUMOTO

Abstract

1) Changes in the incidence rate of tuberculosis in Osaka City and Nishinari Ward

The incidence rate of tuberculosis among people living in Osaka City (per 100,000 people) was 41.5 (number of patients: 1,109) in 2011—an approximately 50% decrease from 82.6 in 2001. However, the figure is 2.3 times higher than the national incidence rate of tuberculosis (17.7), and the highest of all ordinance-designated cities and prefectures. Osaka City consists of 24 wards, and the incidence rate of tuberculosis varies from ward to ward. Although the incidence rate of tuberculosis in Nishinari Ward in 2011 was 199.6 (number of patients: 242) and the highest by far in the city, the figure is approximately 50% of the incidence rate in 2001 (405.9). There were two other wards with the incidence rate of 50.0 or higher, and the lowest incidence rate was 22.4. The incidence rate of tuberculosis in the Airin area of Nishinari Ward is particularly high. Although the number of newly registered patients decreased from 336 to 128 over the past ten years, and the incidence rate significantly decreased from 1,120.0 to 426.7 (when the population of the area was estimated to be 30,000), it is still 24.1 times higher than the national incidence rate.

2) Basic guidelines for tuberculosis strategy developed by Osaka City

Osaka City has developed basic guidelines for tuberculosis strategy to address patients with tuberculosis and eradicate the disease. The first and second periods of the basic guidelines for tuberculosis strategy were ten years from 2001 and 2011, respectively. The overall objective of these basic guidelines was to significantly reduce the incidence rate of tuberculosis, and numerical targets related to basic policies and specific activities were set to accomplish the goal. The basic guidelines allow Osaka City, including its public health centers, to imple-

ment measures against tuberculosis as a municipal project.

3) Assessment of the City's efforts

The measures were assessed on a regular basis at the committee on the assessment of measures for tuberculosis and analysis assessment review meetings, and, as the results, problems were identified and activities were further promoted and reviewed based on scientific evidence.

4) Important measures for patients with tuberculosis living in Nishinari Ward, Osaka City

In addition to the measures implemented by Osaka City, Nishinari Ward plans to improve the measures for the prevention of tuberculosis.

1. Although tuberculosis screening tests conducted in the Airin area have been effective for its early detection to some extent, the rate of identification of patients from 2007 to 2011 was still high (163/18,378). It is necessary to further promote tuberculosis screening.

2. Although the outcomes in general were improved by emphasizing drug administration guidance, there are still many homeless people with tuberculosis and patients who may stop taking drugs. The outcomes of these patients are poor, and, therefore, it is necessary to provide them with improved support.

Key words: Basic guidelines for tuberculosis strategy, Nishinari Ward, Homeless patient, Mass screening, Medication support

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