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ePoster Viewing

Infection control issues

Contact investigation using T-SPOT to evaluate exposure to extensively multidrug-resistant tuberculosis

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Background: Japan continues to be an intermediate tuberculosis (TB)-burden country. Osaka Medical College Hospital is located in Takatsuki City, where the prevalence of TB was 16.0 per 100,000 individuals in 2013, nearly identical to that in Japan (16.1). Interferon gamma release assays (IGRA) were used to screen for latent TB infection from 2008, since the rate of tuberculin skin test positivity was high due to the high rate of BCG vaccination in Japan. The QuantiFERON-TB assay was changed to the T-SPOT assay from 2013. Objectives: There are no paper on the use of the T-SPOT for investigating contacts of extensively multi-drug-resistant tuberculosis (XDR-TB) cases in PubMed. The use of the T-SPOT in the evaluation of nosocomial XDR-TB infection of hospital workers (HWs) and patients was evaluated. Patient: A 74-year-old man without previous anti-TB treatment was admitted to our hospital, where he was treated with corticosteroid for systemic lupus erythematosus. He was also treated with isoniazid (INH) for latent tuberculosis infection (LTBI) because of a positive T-SPOT and negative chest computed tomography (CT) findings on the 1st hospital day. He developed lung tuberculosis with XDR-TB on the 70th hospital day, which was resistant to INH, rifampicin, rifabutin, ethambutol, pyrazinamide, streptomycin, kanamycin and levofloxacin, and sensitive to cycloserine, paraaminosalicylic acid, ethionamide and enviomycin. Chest CT showed lung infiltrations with cavity formation. The chest X-ray was evaluated retrospectively, and the chest X-ray on the 38th hospital day showed new lung infiltration. Methods: The T-SPOT was evaluated in 40 HWs and 10 patients who had close contact with the XDR-TB patient. Results: The baseline T-SPOT was positive in one patient with close contact, and chest CT showed no infiltration, so it was decided to follow the patient with chest X-ray monitoring. The baseline and 3 months after contact T-SPOTs were negative in 9 patients and 40 HWs. The T-SPOT at 6 months after contact was negative in 5 patients and 9 HWs who had many close contacts. The positive IGRA rate of HWs at baseline in our hospital was 4.5% (67/1505). A total of 12 HWs was diagnosed as having LTBI (12/199, 6%) after contacts with drug-sensitive TB patients by IGRA from 2010 to 2013 in our hospital. Conclusion: Although transmission of XDR-TB to HWs and immunocompromised patients occurs, XDR-TB may have been less pathogenic than drug-sensitive TB in this case. It remains controversial whether investigation by T-SPOT after 6 months is enough for patients and HWs with close contacts to XDR-TB, or whether investigation by T-SPOT after 12 months is essential.