Standard Precautions Fatality File

Worker

A 34-year-old, white, married man, previously well, presented to his general practitioner with a 4-week history of influenza-like symptoms, including fevers, night sweats, 5 kg weight loss in under a month and a persistent non-productive cough. He was initially diagnosed with bronchitis and commenced on therapy with a β-agonist inhaler and oral antibiotics.

After 2 weeks, this patient, the index case, experienced his first episode of haemoptysis. He attended work the following day and arranged to see another GP who advised him to remain away from work. This second GP had been trained overseas in a country with a high burden of tuberculosis (TB); he requested sputum microscopy for acid-fast bacilli (AFB) and a chest x-ray, despite there being no significant risk factor for TB. After 48 hours, the patient presented to hospital for isolation and treatment as his chest x-ray showed right upper-lobe consolidation and his sputum was positive for TB on AFB smear (result, 3+). Quadruple antituberculous therapy was commenced and the Victorian Department of Health (DH) was notified.

DH staff traced and screened close household contacts, extended family and friends and workplace contacts. A chest x-ray, tuberculin skin test (TST) and/or interferon-γ release assay (IGRA; by QuantiFERON-TB Gold test) was performed on all contacts of the index case in accordance with DH guidelines. Also in accordance with DH guidelines:

- household contacts were screened both at baseline and 8–12 weeks after break-of-contact (BOC);
- other contacts were screened at 8–12 weeks after BOC only;
- a positive contact was defined as having a TST conversion from no induration at baseline to ≥ 10 mm induration, or a TST result ≥ 10 mm induration at BOC and/or a positive result on IGRA; and
- mycobacterial interspersed repetitive unit variable number tandem repeat (MIRU-VNTR) genotyping was performed on all Mycobacterium tuberculosis (M. tb) isolates.

The sputum sample from the patient with the index case was positive for TB by polymerase chain reaction (PCR), and was also culture-positive for M. tb after 3 weeks. The isolate was fully sensitive to first-line antituberculous medications.

A total of 108 contacts were identified and screened –three household contacts, 16 extended family members and friends, and 89 workplace contacts (Box). TSTs carried out within 4 days of the patient’s diagnosis on the three family members living with him in the same house (his pregnant wife, 4-year-old son and 6-month-old daughter)

were all negative at baseline. However, at 7 weeks, the 4-year-old boy showed conversion on repeat TST, with the induration measuring 15 mm. A chest x-ray showed bilateral hilar adenopathy, right middle-lobe consolidation and left upper-lobe nodules. M. tb was isolated by gastric aspirate. The isolate was fully sensitive to first-line anti-tuberculous drugs and had the same genotype as the index case. The patient’s wife had a repeat TST at 3 months that also converted, with the induration measuring 17 mm. Her chest x-ray remained normal. She deferred prophylaxis because of her pregnancy, but has since completed 9 months of treatment for latent TB infection (LTBI).