

Tuberculosis

1. The tuberculin skin test (TST) with purified protein derivative (PPD) has been used for more than 100 years to screen for tuberculosis (TB). This test becomes positive in:  
A. 2-6 weeks after exposure  
B. 8-10 weeks after exposure  
C. 2-3 months after exposure  
Answer B. The TST becomes positive in 8-10 weeks, but can give false-positive results in patients with previous BCG vaccination and false-negative results in anergic or immunosuppressed patients. However the BCG vaccination should not change the interpretation of the TST in most adults.
2. The QuantiFERON-TB Gold test or the commercially available interferon-gamma release assays (IGRAs) are equivalent to the TST, and the two tests can be used interchangeably.  
True False  
False. The QuantiFERON-TB Gold test or IGRA has discordant results with the TST in about 20% of individuals and, available data supporting the predictive value of IGRA testing remains limited relative to the TST.
3. TB is a potent inducer of cytokines, and most patients develop symptoms of fever, chills, night sweats, chest pain, weight loss, easy tiring, and anorexia  
True False  
False. Although some patients have classic signs and symptoms, it is rare for someone to have most of the classic signs except for advanced diseases. Some patients with active pulmonary TB can be fully asymptomatic.
4. Because TB is mediated by T cells, patients with HIV and a low T cell count are more likely to have cavitary disease.  
True False  
False. Patients with HIV or those with immunocompromise may have classic signs and symptoms, but as the immunosuppression increases, the likelihood of active TB presenting as disseminated or extrapulmonary disease increases. In one study, delays of diagnosis among HIV infected or immunocompromised patients occurred because of atypical presentations or incomplete diagnostic workup.
5. Pleural fluid acid fast bacilli smear and cultures have a high diagnostic yield.  
True False  
False. They have a low diagnostic yield with biopsy showing necrotizing granulomas along with lymphocyte activity markers such as adenosine, deaminase, or interferon-gamma levels are usually increased in tuberculous pleuritis.

6. Normal CSF glucose, protein, and cell count rules out tuberculous meningitis.  
True False  
False. The CSF acid fast bacilli smear has a very low diagnostic yield, and acid fast cultures using seminautomated radiometric system and liquid media BACTEC has the highest diagnostic yield. Concentration of CSF may also increase diagnostic yield. Treatment should be empiric!
7. To prevent the emergence of multi-drug resistant TB (MDR TBC), therapy of active TB should be withheld until specific bacteriologic culture confirmation and susceptibility testing is performed.  
True False  
False. Patients suspected of having TB should be placed on empiric anti-tuberculous medication before bacteriologic culture confirmation and susceptibility testing.
8. The best way to monitor TB treatment is with:  
A. Follow-up chest X-rays  
B. Sputum smears and cultures at 2 and 4 weeks  
C. Sputum smears and cultures at 2 and 3 months  
Answer A. Radiologic evaluation should be performed following the treatment of TB, however, it is less important than sputum. A chest film at completion of treatment provides a baseline for subsequent comparison. In patient with negative sputum cultures before treatment, the major indication of response to therapy are chest radiography and the clinical evaluation. If the radiograph doesn't improve after 2 months of treatment, the abnormality may be the result of either previous TB or another process.

Notes:

Clinicians should screen persons who have close contact with the person who has active pulmonary TB and should screen other persons at high risk of progression of disease. Screen with the TST or IGRA and should prevent infection by identifying and treating persons with active pulmonary TB. Ward isolation is an important part of early treatment. Physicians should notify public health authorities about patients with suspected active TB.

Patients should be evaluated for TB if the cough lasts longer than 2-3 weeks with hemoptysis, chest pain, fever, chills, nightsweats, weight loss, easy fatigue, and anorexia should be evaluated with a chest radiograph and a TST or IGRA. Sputum smears and cultures should be obtained, and a TB expert should be used when the primary physician is inexperienced or the presentation is not straightforward or drug resistance is present and the patient does not respond to therapy.

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