

Study Questions

Choose the ONE best answer.

41.1 A 35-year-old male, formerly a heroin abuser, has been on methadone maintenance for the last 13 months. Two weeks ago, he had a positive tuberculosis skin test (PPD test), and a chest radiograph showed evidence of right upper lobe infection. He was started on standard four-drug antimycobacterial therapy. He has come to the emergency department complaining of "withdrawal symptoms." Which of the following antimycobacterial drugs is likely to have caused this patient's acute withdrawal reaction?

- A. Ethambutol.
- B. Isoniazid.
- C. Pyrazinamide.
- D. Rifampin.
- E. Streptomycin.

41.2 A 42-year-old male HIV patient was recently diagnosed with active tuberculosis. Currently, he is on a stable HIV regimen consisting of two protease inhibitors and two nucleoside reverse transcriptase inhibitors (NRTIs). What is the most appropriate regimen to use for treatment of his tuberculosis?

- A. Rifampin + isoniazid + pyrazinamide + ethambutol.
- B. Rifabutin + isoniazid + pyrazinamide + ethambutol.
- C. Rifapentine + isoniazid + pyrazinamide + ethambutol.
- D. Rifampin + moxifloxacin + pyrazinamide + ethambutol.
- E. Amikacin + moxifloxacin + cycloserine + streptomycin.

Correct answer = D. Rifampin is a potent inducer of cytochrome P450-dependent drug-metabolizing enzymes. The duration of action of methadone is dependent upon hepatic clearance, so enhanced drug metabolism will shorten the duration and increase the risk of withdrawal symptoms in individuals on methadone maintenance. None of the other drugs listed induce cytochrome P450 enzymes.

Correct answer = B. Rifabutin is recommended in place of rifampin in patients coinfecting with HIV, since it is a less potent inducer of CYP enzymes than rifampin. However, rifabutin is a CYP3A4 substrate and "bidirectional" interactions may result. Other medications, such as the protease inhibitors, may affect the concentration of rifabutin, requiring a dose adjustment. Answer E is incorrect as these are not first-line agents.

41.4 A 24-year-old male has returned to the clinic for his 1-month check-up after starting treatment for tuberculosis. He is receiving isoniazid, rifampin, pyrazinamide, and ethambutol. He states he feels fine, but now is having difficulty reading his morning newspaper and feels he may need to get glasses. Which of the following drugs may be causing his decline in vision?

- A. Isoniazid.
- B. Rifampin.
- C. Pyrazinamide.
- D. Ethambutol.

Correct answer = D. Optic neuritis, exhibited as a decrease in visual acuity or loss of color discrimination, is the most important side effect associated with ethambutol. Visual disturbances generally are dose related and more common in patients with reduced renal function. They are reversible (weeks to months) if ethambutol is discontinued promptly.