LEARNING OBJECTIVES

On completion of the chapter, the reader will be able to:

1. Explain risk factors for infection in patients with cancer (including patients undergoing hematopoietic stem cell transplantation, HSCT) and solid-organ transplant (SOT) recipients.
2. Identify the most common bacterial, fungal, protozoal, and viral microorganisms causing infections in immunocompromised patients.
3. Describe approaches to therapeutic management of febrile neutropenia in a patient with cancer by addressing the following issues/controversies: timing of initiation of therapy, management of neutropenic patients who become afebrile after 2 to 4 days of empiric antimicrobial therapy, management of neutropenic patients who remain febrile despite ≥2 to 4 days of empiric antimicrobial therapy; optimal duration of antimicrobial therapy, and management of antimicrobial therapy in patients with documented infections.
4. Describe the most common antibiotic regimens used for initial empiric therapy of febrile neutropenia in cancer patients, and discuss the pros and cons of each type of regimen.
5. Debate the pros and cons of including vancomycin in initial empiric antimicrobial regimens in febrile neutropenic cancer patients.
6. Discuss the role of antimicrobial prophylaxis in neutropenic cancer patients (including HSCT recipients), by addressing each of the following issues/controversies: organisms toward which prophylaxis should be directed, appropriate candidates for prophylaxis, effective antimicrobial prophylaxis regimens, and risks and benefits of antimicrobial prophylaxis in neutropenic patients.
7. Discuss the role of oral therapy in the empiric treatment of febrile neutropenic cancer patients, including appropriate candidates for oral therapy and recommended treatment regimens.
8. Design an appropriate empiric antimicrobial regimen for a cancer patient with fever and neutropenia, and develop a monitoring plan to evaluate the efficacy and toxicity of the regimen.
9. Discuss the spectrum of infections and the time course over which these infections are expected to occur in patients undergoing either HSCT or SOT.
10. Explain risk factors for specific types of infection following HSCT or SOT.
11. Discuss the appropriate role of prophylactic antimicrobials and vaccines in patients undergoing either HSCT or SOT.
12. Design an appropriate antimicrobial prophylaxis regimen in patients undergoing either HSCT or SOT, including drugs, doses, and routes of administration.
13. Describe the appropriate role of cytomegalovirus hyperimmune globulin for the prophylaxis or treatment of viral infections in febrile neutropenic cancer patients (including HSCT) and SOT recipients.
14. Given patient-specific information, recommend appropriate antimicrobial therapy for a patient diagnosed with a specific bacterial, fungal, viral, or parasitic infection following HSCT or SOT.
15. Given patient-specific information, formulate a monitoring plan for a patient receiving an antimicrobial regimen for prophylaxis of infection prior to, or treatment of infection following, HSCT or SOT.