INFECTIOUS DISEASE UNIT

UNIT DESCRIPTION

The Infectious Disease Unit is approximately 29 hours in length. The unit is designed to help students learn the epidemiology, pathophysiology, clinical presentation, management and prevention of infectious diseases commonly encountered in primary care.

LEARNING GOALS:

Upon completion of this unit, the student should be able to:

1. Restate the epidemiology of infectious diseases.
2. Identify the components of the medical history that are especially pertinent to the evaluation of the patient with a suspected infectious disease.
3. Comprehend the etiology, pathophysiology, and signs and symptoms of selected infectious diseases.
4. Explore the diagnostic modalities utilized to evaluate patients with known or suspected infectious diseases.
5. Evaluate the clinical risks and outcomes of infectious diseases in immunocompromised patients.
6. Organize an approach for treating patients with common infectious diseases.
7. Recommend preventive measures to decrease the risk of acquiring and transmitting infectious diseases.
8. Specify the indication(s) for ordering consultations and/or referrals for the patient presenting with an infectious disease.

UNIT OUTLINE

1. Approach to the Patient with Infectious Disease – Intro to Clinical Microbiology and Immunocompromised Patients
2. Sepsis
3. The Febrile Patient/ Fever of Unknown Origin
4. Infectious Gastroenteritis
5. Infectious Endocarditis
6. Adult Immunizations
7. Overview of HIV Disease/ Opportunistic Infections
8. Nosocomial Infections
9. Soft Tissue Infections
10. Diseases of Travelers
11. Arthropod-Borne Infections
12. Adult Viral Infections
INSTRUCTIONAL OBJECTIVES

Approach to the Patient with Infectious Disease – Intro to Clinical Microbiology and Immunocompromised Patients

1. Describe the major host defense mechanisms, including mechanical barriers, phagocytosis and immune responses.
2. Explain how defects in the defense mechanisms can affect susceptibility to infectious diseases.
3. Explore the effects of aging on host defense mechanisms.
4. Explain how the presence of diabetes affects susceptibility to infectious diseases, including the effects of macro and microvascular disease, neuropathy and immunologic factors.
5. Evaluate the impact of asplenism, hepatic cirrhosis and corticosteroids on a patient’s susceptibility to infectious diseases.

Sepsis

1. Define sepsis.
2. List the etiologies, pathogenesis and predisposing factors for sepsis and septic shock.
3. Describe the clinical presentation of the septic patient.
4. Give examples of the modalities used to evaluate a patient with suspected sepsis.
5. Explain the treatment of patients with sepsis and septic shock.

Febrile Patient/ Fever of Unknown Origin

1. Define fever and understand the thermoregulatory mechanisms.
2. Recognize the pathophysiology, benefits and clinical manifestations of fever.
3. Identify common causes of fever.
4. Develop a clinical approach to the patient with fever.
5. Define fever of unknown origin and explain the evaluation of the patient with an unexplained fever.
6. Differentiate the most common causes of fever of unknown origin and their treatments.

Infectious Gastroenteritis

1. Explain the clinical approach to the patient with diarrhea.
2. Identify the epidemiology, etiology, pathophysiology and clinical manifestations of each of the diarrheas associated with toxin mediated, partial mucosal invasion and complete mucosal invasion infections.
3. Identify suspected causative organisms based on history, physical and stool examination.
4. Explain the treatment for infectious diarrhea.
5. Recite the epidemiology, etiology, pathophysiology and clinical manifestations of viral and parasitic gastroenteritis.
6. Identify suspected causative organisms of viral and parasitic gastroenteritis based on history, physical and stool examination.
7. Give examples of the treatments for viral and parasitic gastroenteritides.

**Infectious Endocarditis**

1. Identify the microbiology and pathogenesis of infective endocarditis.
2. Name the sites affected by endocarditis.
3. Name the cardiac abnormalities that predispose a patient to infective endocarditis.
4. Recognize the clinical manifestations of infective endocarditis.
5. Review the relative utility of trans-esophageal echocardiography, trans-thoracic echocardiography and blood cultures in the diagnosis of infective endocarditis.
7. Know the common treatments of infective endocarditis.
8. Recognize the potential complications of infective endocarditis and know the indications for valve replacement.
9. Summarize the approach to endocarditis prophylaxis based on the patient’s underlying cardiac abnormalities and potential clinical procedures.

**Adult Immunizations**

1. List the required and recommended immunizations for the immunocompromised and immunocompetent adult.
2. Describe the route of administration and routine administration schedule for adult immunizations.
3. Discuss the precautions, indications and contraindications for adult immunizations.

**Overview of HIV Disease/ Opportunistic Infections**

1. Describe the immunosuppression induced by HIV infection.
2. Review the host immune response to infection with HIV and understand the mode of transmission of the virus.
3. Explain the laboratory tests available to diagnose HIV and know the sensitivity and specificity of the tests.
4. Recognize the clinical manifestations of HIV/AIDS.
5. Summarize the initial and annual medical evaluation of the HIV positive patient.
6. Describe the most common opportunistic infections and neoplasms related to HIV infection and the clinical manifestations, diagnosis, treatments and prophylaxis for each.
7. Give examples of the indications, regimens and side effects of commonly prescribed antiretrovirals.
8. List the recommendations for postexposure prophylaxis.
9. Explain the importance of psychosocial issues for patients with HIV/AIDS.

**Nosocomial Infections**

1. Define nosocomial infection.
2. Identify the sources and modes of transmission of nosocomial pathogens.
3. Identify the common sites of nosocomial infections.
4. List the risk factors for, and signs and symptoms of common nosocomial infections.

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5. Describe the epidemiology, pathophysiology, etiology and treatment for common nosocomial infections.
6. Discuss strategies for preventing transmission of nosocomial pathogens.

**Soft Tissue Infections**

1. Identify the pathology and microbiology of skin infections.
2. Distinguish soft tissue infections by their clinical manifestations, location and underlying patient risk factors (impetigo, folliculitis, purulent and nonpurulent cellulitis, erysipelas, abscesses, and necrotizing infections).
3. Discuss the current epidemiology, clinical manifestations and treatment of community acquired MRSA.
4. Determine appropriate medical and surgical management and understand when hospital admission is required for a patient with a soft tissue infection.
5. Give examples of the common pathogens and treatments for human and animal bites.
6. Explain the complications that may occur with animal and human bites, including clenched fist injuries.
7. Recite the recommendations for tetanus and rabies immunizations.
8. Review the clinical manifestations and treatment of spider bites.

**Diseases of Travelers**

1. Restate the health risks associated with travel.
2. Describe the pre-travel health assessment including recommended immunizations and chemoprophylaxis.
3. List the etiologies, clinical manifestations and treatment of travelers’ diarrhea, malaria, giardiasis, typhoid fever, amebiasis and hepatitis.
4. Explain the etiologies and clinical manifestations of less commonly encountered international diseases including cholera, leishmaniasis, Dengue fever, trypanosomiasis, ascaris and schistosomiasis.

**Arthropod-Borne Infections**

1. Identify the causative agents for Lyme disease, ehrlichiosis, Rocky Mountain spotted fever, babesiosis, West Nile, viral encephalitis, malaria, dengue fever, and yellow fever.
2. Explain the vector of transmission and recognize the clinical manifestations for each.
3. Recite the diagnostic workup and treatments for common arthropod diseases.
4. Describe the measures available to prevent disease transmission.
5. Compare the indications and contraindications for preventative immunizations.

**Adult Viral Infections**

1. Identify the structure and relative size of human virus families.
2. Explain the classification of human viruses.
3. Review the pathogenesis of viral infections.
4. Explain the host defense mechanisms for viral infections.
5. Discuss the epidemiology, etiology, clinical manifestations, diagnostic workup and treatment of the common cold, influenza, rubella and the herpes viridae group.
6. Discuss the clinical manifestations, diagnostic workup, treatment and complications for the common cold, influenza, rubella and the herpes viridae infections.
7. Explain how viral illnesses can be prevented and be familiar with the vaccines that are available, their indications, contraindications and dosage schedules.

METHODS OF EVALUATION

Examination 100%

TEACHING STRATEGIES

Lectures

REQUIRED READINGS

Goldman and Bennett: Cecil Textbook of Medicine
Selected Handouts