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Preface xi
Nancy Misri Khardori

Infectious Disease Emergencies: Frontline Clinical Pearls 1033
B. Mitchell Goodman III, Jody P. Boggs, Sami G. Tahhan, Jennifer L. Ryal, and Ian A. Chen

This article reviews various infectious disease emergencies from an internist’s perspective. Key epidemiologic, diagnostic, and therapeutic points are reviewed with an emphasis on timely and appropriate initial management. The content serves to highlight essential points that are discussed in subsequent articles in this issue and to elucidate pearls that may facilitate timely and appropriate management.

Role of Molecular Diagnostics in the Management of Infectious Disease Emergencies 1067
Neel K. Krishna and Kenji M. Cunnion

Clinical laboratories have traditionally relied on time-consuming phenotypic methods such as culture, serology, and biochemical tests for detection, identification, and characterization of microbial pathogens. Real-time polymerase chain reaction technology can now identify many pathogenic organisms that constitute infectious disease emergencies in normal and immune-compromised hosts. Use of this molecular technology for the accurate diagnosis of infectious disease agents by clinical laboratories reduces the time to diagnosis for many pathogens. This article is designed such that the clinician evaluating a patient with severe acute illness can reference the most relevant molecular diagnostics available pertinent to the predominant organ system involved.

Choosing Optimal Antimicrobial Therapies 1079
Thomas J. Lynch

Life-threatening infectious disease emergencies require immediate, aggressive parenteral administration of antimicrobial agents to ensure high bactericidal concentrations of drug at the site of infection. Initial treatment is an empiric approach using of broad-spectrum bactericidal agents aimed at eradicating the presumed infecting organism(s), which potentially could be multidrug resistant. Once an infection is under control and the culture and sensitivity results are reported, it is important to switch to the most narrow-spectrum agent possible. This action will decrease the potential for adverse drug effects and the risk of development of antibiotic-induced resistance.

Endocrine and Metabolic Changes During Sepsis: An Update 1095
Romesh Khardori and Danielle Castillo

Sepsis is associated with various metabolic and endocrine disorders that can be confusing. A cardinal manifestation is hyperglycemia. The glycemic
goal has been somewhat relaxed based on evidence that very tight glucose control may be undesirable. Relative adrenal insufficiency has receded into the background, and the unconditional love for steroids is no longer justified. Instead, glucocorticoids need to be used in special cases, and testing for adrenal reserve is no longer necessary or justifiable. Thyroid dysfunction, and hypogonadism, both often noted with sepsis, do not require any treatment. Abnormalities in growth hormone, prolactin, and vasopressin secretion similarly require no treatment.

Head and Neck Emergencies: Bacterial Meningitis, Encephalitis, Brain Abscess, Upper Airway Obstruction, and Jugular Septic Thrombophlebitis 1107
Catherine J. Derber and Stephanie B. Troy

Head and neck infectious disease emergencies can be rapidly fatal without prompt recognition and treatment. Empiric intravenous (IV) antibiotics should be initiated immediately in any patient with suspected bacterial meningitis, and IV acyclovir in any patient with suspected encephalitis. Surgical intervention is often necessary for brain abscesses, epiglottitis, and Ludwig’s angina. A high index of suspicion is often needed to diagnose epiglottitis, Ludwig’s angina, and Lemierre’s syndrome. Brain infections can have high morbidity among survivors. In this article, the causes, diagnostic tests, treatment, and prognosis are reviewed for some of the more common head and neck infectious disease emergencies.

Pulmonary Emergencies: Pneumonia, Acute Respiratory Distress Syndrome, Lung Abscess, and Empyema 1127
Himanshu Desai and Aarti Agrawal

This article describes the clinical presentation of pneumonia, acute respiratory distress syndrome, lung abscess, and empyema: life-threatening infections of the pulmonary system. The etiology and risk factors for each of these conditions are described, diagnostic approaches are discussed, and evidence-based management options are reviewed.

Cardiac Emergencies: Infective Endocarditis, Pericarditis, and Myocarditis 1149
Tin Han Htwe and Nancy Misri Khardori

Cardiac infections presenting as emergencies include complications of infective endocarditis, including congestive heart failure, chordae tendinae rupture, cardiac arrhythmias, and embolic phenomenon; acute pericarditis, including cardiac tamponade; and acute myocarditis presenting with malignant cardiac arrhythmias or congestive heart failure. Most of these emergent infectious disease manifestations of the cardiovascular system have a good prognosis if diagnosed early and managed appropriately. The focus of this article is on newer diagnostic modalities and combined treatment guidelines from the European Society of Cardiology and the American Heart Association.

Intra-abdominal and Pelvic Emergencies 1171
Sushma Singh and Nancy Misri Khardori

The diversity in intra-abdominal/pelvic infections is more than any other organ system. Several clinical scenarios can end up in intra-abdominal
infections. The common causes include penetrating abdominal trauma, abdominal surgery, diverticulitis, appendicitis, pancreatitis, biliary disease, perforated viscus, and primary peritonitis. Intra-abdominal infections can masquerade as fever of obscure origin or as dysfunction of neighboring organs, such as lower lobe pneumonia related to a subphrenic abscess or an abscess causing small bowel obstruction. An urgent surgical intervention is the mainstay of the management of serious intra-abdominal infections.

Necrotizing Soft-Tissue Infections
Praveen K. Mullangi and Nancy Misri Khardori

Soft-tissue infections encompass a wide spectrum of presentations ranging from superficial skin infection (cellulitis) to deep-seated infection (myositis and fasciitis), based on the depth and the area of involvement. Although less frequent, necrotizing soft-tissue infections (NSTIs) occur based on the interactions between the host factors and the causative pathogens. NSTIs are rapidly progressing and aggressive infections that can be lethal, with high morbidity and mortality. This article reviews some of the causative agents of NSTIs, clinical features, and the need for high index of suspicion for early recognition and prompt surgical and medical management.

Sepsis Syndrome, Bloodstream Infections, and Device-Related Infections
Mayar Al Mohajer and Rabih O. Darouiche

The diagnosis of sepsis is challenging given the lack of appropriate diagnostic methods and the inaccuracy of diagnostic criteria. Early resuscitation, intravenous antibiotics, and source control are crucial in the management of septic patients. The treatment of catheter-related bloodstream infection (CRBSI) often comprises 1 to 2 weeks of intravenous antibiotics plus catheter removal. Infections related to surgical devices are more difficult to manage because they require longer duration of therapy and possibly multiple surgical procedures. This review represents an update on the diagnosis and management of sepsis, catheter-related bloodstream infections and some clinically important device-related infections.

Infectious Disease Emergencies in Returning Travelers: Special Reference to Malaria, Dengue Fever, and Chikungunya
Chand Wattal and Neeraj Goel

This review article discusses important infectious illnesses, namely malaria, dengue, and chikungunya, in travelers returning from endemic areas. Malaria and dengue are two of the most common systemic illnesses reported in returning travelers. Because chikungunya is gaining importance, it is also briefly discussed. The clinical significance of these diseases is mainly due to the possibility of sudden deterioration with high mortality in clinically healthy looking patients. The key clinical features, their diagnosis, and treatment algorithms are discussed in detail to help in early diagnosis and appropriate clinical management of such travelers presenting in emergency departments.