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Acute ST-Segment Elevation Myocardial Infarction: Critical Care Perspective 685
Amrita M. Karve, Eduardo Bossone, and Rajendra H. Mehta

More than 1.2 million patients suffer from new or recurrent ischemic events occur annually. This includes an estimated 565,000 cases of first and 300,000 cases of recurrent myocardial infarction (MI). Although mortality from acute MI has declined in recent years, it still remains high at 25% to 30%. Despite its high mortality, prognosis can be improved with timely and effective use of evidence-based treatment in the acute setting. This review outlines the critical care management strategies for ST-segment MI (STEMI).

Acute Coronary Syndromes: Unstable Angina/Non-ST Elevation Myocardial Infarction 709
Rohit Bhatheja and Debabrata Mukherjee

Acute coronary syndrome is a major health problem affecting approximately 1.5 million individuals a year. Early diagnosis and appropriate evidence-based therapies improve clinical outcomes significantly. Current data suggest that an early invasive therapy may improve intermediate-term and long-term outcomes, particularly in high-risk individuals. The last few years also have seen significant advances in antiplatelet and antithrombotic therapies for the management of patients who have acute coronary syndrome.

Acute Decompensated Heart Failure

737

James F. Neuenschwander, II and Ragavendra R. Baliga

This article defines acute decompensated heart failure. Additionally, it lists common precipitating factors and the clinical presentation. Proper diagnostic technique is highlighted, as are possible treatments.

Cardiogenic Shock Complicating Myocardial Infarction

759

Hitinder S. Gurm and Eric R. Bates

Cardiogenic shock is the primary cause of death among patients hospitalized with acute myocardial infarction. It is defined as tissue hypoperfusion resulting from ventricular pump failure in the presence of adequate intravascular volume. These patients need rapid assessment and appropriate institution of supportive therapies including vasopressor and inotropic agents, ventilatory support, and intra-aortic balloon pump counterpulsation. Emergency coronary artery revascularization is the only therapy that reduces mortality, and this should be provided early to patients to achieve maximal benefit, unless further care is deemed futile. Whereas newer support devices can provide better hemodynamic augmentation, their impact on mortality is limited. Novel therapies are needed to further decrease mortality rates, which remain high despite reperfusion therapy.

Acute Aortic Dissection

779

Desikan Kamalakannan, Howard S. Rosman, and Kim A. Eagle

Acute aortic dissection is an uncommon but potentially catastrophic illness with high mortality. Significant advances in the understanding, diagnosis, and management have been made since the first reported case of aortic dissection 3 centuries ago. This comprehensive review discusses the pathophysiology, classification, clinical manifestations, early diagnosis, and management of this important cardiovascular emergency.

Pulmonary Hypertension in the Critical Care Setting: Classification, Pathophysiology, Diagnosis, and Management

801

Melvyn Rubenfire, Melike Bayram, and Zachary Hector-Word

Pulmonary hypertension (PH) is common in the critical care setting, and may be a target for specific therapy. Moderate degrees of pulmonary hypertension are most often the consequence of acute or chronic heart failure, hypoxemia, or acute pulmonary embolism, and may be relatively rapidly reversible. The consequences of more severe forms of PH, both acute and chronic, can include hypotension; low cardiac output; right heart failure with congestion of the liver, gut, and kidneys; and varying degrees of hypoxemia, each of which can lead to death or severe disability. We review the physiology, definitions, classification, pathogenesis,

diagnostic tools, and algorithms for diagnosis and specific treatments for the various causes of PH as seen in the critical care setting.

CT and MRI of Acute Thoracic Cardiovascular Emergencies

835

Aamer Chughtai and Ella A. Kazerooni

A wide spectrum of acute cardiovascular disorders is seen in patients who are hospitalized in a critical care setting. Imaging plays a central role in the diagnosis and management of these conditions. The most frequently used imaging remains chest radiography; however, more advanced modalities, including coronary angiography, echocardiography, and radioisotope scintigraphy, have well established roles in the assessment of patients in the critical care setting. More recently, multidetector row CT (MDCT) and MRI are being used increasingly for evaluation of coronary artery disease, cardiac structure and function, coronary artery anomalies, cardiac masses, pericardial disease, valvular disease, postoperative cardiovascular abnormalities, venous thromboembolism and acute aortic syndromes, often with other ancillary findings that can provide important clinical information. The three most common life-threatening cardiovascular processes in which advanced imaging plays a role, particularly CT, are discussed, including pulmonary embolism, aortic dissection, and coronary artery disease.

Cardiac Arrhythmias: Management of Atrial Fibrillation in the Critically Ill Patient

855

Thomas C. Crawford and Hakan Oral

This article reviews the most relevant information for the hospitalist or intensivist managing patients who have atrial fibrillation (AF) in the acute or critical care setting. Emphasis is placed on clinically useful information, and evidence-based strategies for managing acute and chronic AF.

Cardiopulmonary Resuscitation and Acute Cardiovascular Life Support—A Protocol Review of the Updated Guidelines

873

Larry M. Diamond

For the first time in 5 years, new guidelines for cardiopulmonary resuscitation (CPR) of adults and children were introduced at the end of November 2005. The new CPR guidelines evolved from emerging evidence-based resuscitation studies and the evaluation process included the input of 281 international resuscitation experts who evaluated hypotheses, topics, and research over a 36-month period. The process included evidence evaluation, review of the literature, and focused analysis. This article reviews the four major changes to the guidelines. Changes are currently being made in the training of all new and recertifying ACLS health care providers.

**Delirium, Depression, and Other Psychosocial
and Neurobehavioral Issues in Cardiovascular Disease**

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Oliver G. Cameron

Understanding relevant psychosocial (neural, behavioral, psychiatric) issues is essential to optimal care of individuals who have cardiovascular disorders. Delirium, a condition of diffuse cerebral dysfunction caused by underlying systemic or central nervous system pathology, and often requiring measures of acute neurobehavioral management with nonpharmacological and pharmacological means, in addition to treatment of the underlying medical disorder, often occurs in association with severe cardiovascular disease. Depression is a psychiatric disorder known to be associated with cardiovascular disease. Substantial improvement in understanding the nature of this association has occurred in the past 10 to 20 years, including very preliminary data suggesting that pharmacological treatment with selective serotonin reuptake inhibitor (SSRI) antidepressants might improve postmyocardial infarction cardiac prognosis. Numerous other factors—*anxiety, stress, social support, anger, and other personality factors*—also are implicated in the relationship of psychosocial issues to cardiovascular disease.

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