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Syncope due to Autonomic Dysfunction: Diagnosis and Management 691
Wayne O. Adkisson and David G. Benditt

Syncope is one of several disorders that cause transient loss of consciousness. Cerebral hypoperfusion is the proximate cause of syncope. Transient or fixed autonomic nervous system dysfunction is a major contributor in many causes. A structured approach to the evaluation of syncope allows for more effective therapy.

Cardiovascular Disease Risk Assessment and Prevention: Current Guidelines and Limitations 711
Peter Alagona Jr and Tariq Ali Ahmad

Even after decades of progress in understanding atherosclerotic cardiovascular disease (ASCVD) and improved cardiovascular event prevention, the incidence, consequences and cost of cardiovascular disease (CVD) remain a significant public health issue. Observational studies have identified major ASCVD risk factors and lead to the development of a number of risk assessment systems/scores now in use. However many patients who will develop clinically important CVD are not identified by current systems or approaches and significant numbers of recurrent cardiovascular events continue to occur even after aggressive secondary prevention treatment strategies are utilized. Some now term this residual risk. The statin era revolutionized clinical practice with effective outcome-driven risk reduction. As a result there are now numerous clinical recommendations or guidelines for ASCVD risk stratification and treatment. Further disease and event prevention may rely on improved patient-centered risk stratification using novel biomarkers, imaging techniques, and new treatment approaches including emerging pharmacologic therapies.

2014 Guideline for the Management of High Blood Pressure (Eighth Joint National Committee): Take-Home Messages 733
Umar Farooq and Sunita G. Ray

The JNC 8 guidelines focus on 3 highest-ranked clinical questions that include BP thresholds for starting therapy, specific BP goals, and risks and benefits of specific antihypertensive drugs. Only randomized controlled trial data were used and JNC 8 panel did not include observational studies, systematic reviews, or meta-analyses. The investigators also suggested that benefit of lowering BP to less than 140/90 is not clear.
Lifestyle modifications were considered very important for all patients with hypertension. These recommendations are not alternatives for clinical judgment, and decisions about medical care must be individualized to each patient.

How to Follow Patients with Mitral and Aortic Valve Disease

Blase Carabello

Valvular heart diseases (VHDs) place a hemodynamic load on the left and/or right ventricle that, if severe, prolonged, and untreated, damages the myocardium, leading to heart failure and death. Because all VHDs are mechanical problems, definitive therapy usually requires valve repair or replacement. In most valve disease the onset of symptoms marks a change in disease prognosis and is usually an indication for prompt surgical correction. Echocardiography is an indispensable modality for assessing lesion severity, its effect on cardiac function, and the proper timing for lesion correction. Intervention enhanced with percutaneous options now allows patients to benefit from mechanical correction.

New Oral Anticoagulants: Their Role in Stroke Prevention in High-Risk Patients with Atrial Fibrillation

Sunita J. Ferns and Gerald V. Naccarelli

Based on efficacy, safety, and ease of use, novel oral anticoagulants will likely replace VKAs for many if not most patients with atrial fibrillation. Novel anticoagulants have a lower rate of intracranial hemorrhage compared with vitamin K antagonists. The incidence of other life-threatening bleeds is similar if not lower. Dose adjustments need to be made based on renal function and advanced age. There is at present a need for an antidote for these new drugs.

Management of Atrial Fibrillation

Talal Moukabary and Mario D. Gonzalez

Atrial fibrillation is a very common clinical problem with a high prevalence that is expected to rise over time because of increasing risk factors (eg, age, obesity, hypertension). This high prevalence is also associated with high cost, because atrial fibrillation represents about 1% of overall health care spending. The management of atrial fibrillation involves multiple facets: (1) management of underlying disease if present and the management of atrial fibrillation risk factors, (2) prevention of thromboembolism, (3) control of the ventricular rate during atrial fibrillation, and (4) restoration and maintenance of normal sinus rhythm.

Indications for Pacemakers, Implantable Cardioverter-Defibrillator and Cardiac Resynchronization Devices

Soraya M. Samii

Implantable cardiac devices are important management tools for patients with heart rhythm disorders and heart failure. In this article, the current implantable cardiac rhythm devices are described in their evolution. The
current indications and contraindications for these cardiac rhythm devices are reviewed.

**Current Status of Transcatheter Aortic Valve Replacement** 805

Kunal Sarkar, Mrinalini Sarkar, and Gian Paolo Ussia

The advent of transcatheter aortic valve replacement (TAVR) has modified the treatment of severe aortic stenosis (AS). Large randomized trials and multicenter registries have endorsed the efficacy of TAVR in improving outcomes in patients with severe AS who are inoperable or high surgical risk. There has been a noticeable shift in using TAVR in patients with AS who are not at a high surgical risk. Appropriate diagnosis, patient selection, and referral remain cornerstones to achieving optimal outcomes after TAVR or SAVR (surgical aortic valve replacement).

**Chest Pain Evaluation in the Emergency Department** 835

Andrew J. Foy and Lisa Filippone

Chest pain is a common complaint in the emergency department. Recognition of chest pain symptoms and electrocardiographic changes consistent with acute coronary syndrome (ACS) can lead to prompt initiation of goal-directed therapy. Cardiac troponin testing confirms the diagnosis of acute myocardial infarction, but does not reveal the mechanism of injury. When patients with chest pain rule out for ACS the use of advanced, noninvasive testing has not been found to be associated with better patient outcomes.

**Cardiac MRI: A General Overview with Emphasis on Current Use and Indications** 849

Michael P. Pfeiffer and Robert W.W. Biederman

Cardiac magnetic resonance is well-established as a robust modality of cardiovascular imaging, providing superior resolution, infinite imaging planes, and the ability to obtain multiple types of information without ionizing radiation. Limitations imposed by availability, cost effectiveness, and safety prevent universal application. Many general and specialty practitioners do not have routine exposure to Cardiac MRI (CMR). Guidelines for the use of CMR exist, but continue to adapt to advances in techniques and ongoing research. Understanding the basics of CMR acquisition techniques, categories of appropriate use, and pertinent safety information will assist with selecting the best clinical scenarios to consider CMR.

**Current Management of Heart Failure: When to Refer to Heart Failure Specialist and When Hospice is the Best Option** 863

Behnam Bozorgnia and Paul J. Mather

Heart failure is a common syndrome caused by different abnormalities of the cardiovascular system that result in impairment of the ventricles in filling or ejecting blood. It is one of the most common causes of hospitalization in the United States, with a very high cost to the health care system. This article focuses on the causes of left ventricle dysfunction and the presentation and management of heart failure, both acute and chronic.
Emerging Role of Digital Technology and Remote Monitoring in the Care of Cardiac Patients

Javier E. Banchs and David Lee Scher

Current available mobile health technologies make possible earlier diagnosis and long-term monitoring of patients with cardiovascular diseases. Remote monitoring of patients with implantable devices and chronic diseases has resulted in better outcomes reducing health care costs and hospital admissions. New care models, which shift point of care to the outpatient setting and the patient’s home, necessitate innovations in technology.

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