Contents

Foreword: In Evidence We Trust xv
Jack Ende

Preface xvii
Douglas S. Jacoby

Heart-Healthy Diets and the Cardiometabolic Jackpot 235
Cameron K. Ormiston, Ashley Rosander, and Pam R. Taub

Video content accompanies this article at http://www.medical.theclinics.com.

This review highlights the key components of a heart-healthy diet and presents an evidence-based overview of recent research. Diets that increase plant-based food sources and healthy unsaturated fats consumption and limit foods that are processed and/or high in sodium, refined sugar, and saturated fat are recommended. Dietary modification can be supplemented with lifestyle-based therapies (eg, exercise, time-restricted eating) to maximize clinical benefit and achieve the “cardiometabolic jackpot.” Physicians should take into account cultural preferences, affordability and accessibility of foods, and their patients’ cultural values or expectations when recommending dietary interventions.

The Role of Physical Activity and Exercise in Preventive Cardiology 249
Paul D. Thompson

The cardiovascular epidemiologist, Jeremy Morris, called physical activity “the best bargain in public health,” but few clinicians use exercise and physical activity in their practice. Clinicians should routinely inquire about physical activity and recommend that patients achieve the minimal levels recommended by the 2018 Physical Activity Guidelines for Americans. Clinician should avoid unnecessary testing that discourages patients from an active lifestyle. Patients after myocardial infarction, cardiac surgery, or the diagnosis of heart failure or claudication should be referred to an exercise-based cardiac rehab program. Physical activity and exercise training may be a clinical bargain, but as with all medical interventions, it must be used to be effective.

Update in Hypertension 259
Christopher B. McFadden

The treatment of elevated blood pressure (BP) can improve cardiovascular (CV) event rates. Current BP targets depend on expected CV event rates in individuals as assessed by concurrent medical conditions and other risk factors. Importantly, the means by which BP is measured has evolved. This evolution is driven by recognition that techniques different than
routine office BP measurements can provide a better assessment of future CV risk.

Evaluation and Management of Secondary Hypertension
269
Harini Sarathy, Liann Abu Salman, Christopher Lee, and Jordana B. Cohen
Hypertension is a major cause of cardiovascular morbidity and mortality globally. Many patients with hypertension have secondary causes of hypertension that merit further evaluation. For example, secondary hypertension can result in target organ damage to the heart, kidneys, and brain independent of the effects of blood pressure. Several causes benefit from targeted therapies to supplement first-line antihypertensive agents. However, secondary hypertension is often underrecognized. The goal of this review is to highlight optimal approaches to the diagnosis and management of common causes of secondary hypertension, including primary aldosteronism, renovascular hypertension, obstructive sleep apnea, and drug-induced hypertension.

What is the Optimal Low-Density Lipoprotein Cholesterol?
285
Andrew Gagel, Fawzi Zghyer, Christeen Samuel, and Seth S. Martin
One’s total atherosclerotic plaque burden is related to his or her cumulative exposure to low-density lipoprotein cholesterol (LDL-C) and other apoB-containing lipoproteins. Long-term exposure to lower LDL-C levels is associated with a lower risk of cardiovascular events compared with shorter term exposure to lower LDL-C. New lipid-reducing agents have been able to reduce LDL-C to previously unseen levels, showing efficacy in safely decreasing rates of atherosclerotic cardiovascular disease in primary and secondary prevention populations. To date, an LDL-C level below which there is no clinical benefit has not yet been identified.

Triglycerides: How to Manage Patients with Elevated Triglycerides and When to Refer?
299
Najdat Bazarbashi and Michael Miller
Hypertriglyceridemia (HTG) is among the most common dyslipidemias seen in clinical practice. Studies in recent years have demonstrated a causal relationship between triglyceride-rich lipoproteins (TRL) and cardiovascular disease (CVD). This is primarily due to enhanced atherogenicity of cholesterol-enriched remnants, the metabolic byproducts of TRLs. While desirable TGs are less than 150 mg/dL (fasting) or 175 mg/dL (nonfasting), optimal levels are likely to be less than 100 mg/dL. First line treatment for HTG is directed at lifestyle and includes weight loss. National guidelines recommend that adults aged 40-75 years with elevated triglycerides (175-499 mg/dL) and increased CVD risk (i.e., 7.5% or higher) have statins initiated or intensified after lifestyle and secondary factors are addressed. The recent results of the REDUCE-IT study also support consideration of Icosapent ethyl, the highly purified EPA, to further reduce CVD risk in high-risk patients with HTG.
Cardiovascular Genetics: The Role of Genetics in Predicting Risk

Jessica Chowns, Lily Hoffman-Andrews, Amy Marzolf, Nosheen Reza, and Anjali Tiku Owens

Many cardiovascular disorders have underlying genetic causes. Clinical genetic testing for cardiovascular disease has become widely available and can be useful for diagnosis, management, and cascade screening in selected conditions and circumstances. This article gives an overview of the current state of genetic testing in inherited cardiovascular conditions, who can benefit from it, and the associated challenges.

Genetic Lipid Disorders Associated with Atherosclerotic Cardiovascular Disease: Molecular Basis to Clinical Diagnosis and Epidemiologic Burden

Reed Mszar, Gayley B. Webb, Vivek T. Kulkarni, Zahid Ahmad and Daniel Soffer

Genetic lipid disorders, ranging from common dyslipidemias such as familial hypercholesterolemia, lipoprotein (a), and familial combined hyperlipidemia to rare disorders including familial chylomicronemia syndrome and inherited hypoalphalipoproteinemias (ie, Tangier and fish eye diseases), affect millions of individuals in the United States and tens of millions around the world and are often undiagnosed in the general population. Clinicians should take into consideration the potential of inherited lipid disorders or syndromes when severe derangements in lipid parameters are observed. Patients' combined genotype and phenotype should be evaluated in conjunction with a host of environmental factors impacting their risk of atherosclerotic cardiovascular disease.

Cardio-Rheumatology: Prevention of Cardiovascular Disease in Inflammatory Disorders

Paul Nona and Cori Russell

Inflammation plays a well-established role in the development and progression of atherosclerosis. Individuals exposed to chronic inflammation are at an increased risk of developing cardiovascular disease, including coronary artery disease and heart failure, independent of associated traditional risk factors. Traditional risk assessment tools and calculators underestimate the true cardiac risk in this population. In addition to this, there is a lack of awareness on the association between inflammation and cardiovascular disease. These factors lead to undertreatment in terms of preventive cardiac care in patients with chronic inflammatory disease.
Women’s Cardiovascular Health: Selecting the Best Contraception

Monika Sanghavi and Jourdan E. Triebwasser

Basic knowledge about contraceptive types, efficacy, and indications is absolutely necessary for cardiologists caring for reproductive-age women for whom pregnancy could cause significant morbidity or mortality and for those on teratogenic medications. This summary provides a comprehensive overview of contraception options.

Noninvasive Imaging for the Asymptomatic Patient: How to Use Imaging to Guide Treatment Goals?

Juliette Kathleen Logan and Michael Parker Ayers

Imaging subclinical atherosclerosis identifies individuals at higher risk of cardiovascular disease through direct visualization before events occur so that preventative measures can be taken. Coronary artery calcium (CAC) scans are the most widely used and studied to identify subclinical atherosclerosis and are most useful in men older than 40 years and women older than 50 years. Coronary computed tomography angiography has high prognostic value and might be the best modality for assessing subclinical atherosclerosis with incremental increase in predictive value over CAC. Ankle-brachial indexes are specific markers for cardiovascular risk but are a less sensitive tool for risk assessment.

Drug Interactions: What Are Important Drug Interactions for the Most Commonly Used Medications in Preventive Cardiology?

Aziz Hammoud and Michael D. Shapiro

Significant drug interactions contribute to hospitalizations, mortality, and health care costs. They often are preventable with a basic understanding of pharmacokinetics and pharmacodynamics. More than quarter of Americans above the age of 40 years take a statin, the most commonly used lipid-lowering therapy in modern times. Because of their pharmacokinetics, statins interact with numerous other drugs and substances, often in a manner that differs from statin to statin. This article provides an overview of important drug interactions for the most commonly used medications in preventive cardiology, with an emphasis on clinically significant interactions involving statins.

Race and Modifiable Factors Influencing Cardiovascular Disease

Alvis Coleman Headen, Andrew Siaw-Asamoah, and Howard M. Julien

A modern approach to mitigating the impact of cardiovascular disease on Americans demands not only an understanding of modifiable conditions that contribute to its development but also a greater appreciation of the heterogeneous distribution of these conditions based on race. As race is not a biological construct, further research is needed to fully elucidate the mechanisms that contribute to these differences. The consequences of the differential impact of modifiable risk factors on cardiovascular disease outcomes among black Americans compared with white Americans cannot be understated.