

Book Reviews

Z. Nicholas Zakov, MD
Section Editor

Atherosclerosis Reviews, volume 14 edited by Antonio M. Gotto, Jr., and Rodolfo Paoletti and volume 15 edited by Scott M. Grundy (Raven).

Volume 14 of *Atherosclerosis Reviews* contains nine chapters written by internationally known authors. The book begins with a summary of some recent epidemiologic studies and treatment trials that have been used to support recent recommendations for a more aggressive approach to the diagnosis and treatment of individuals with hypercholesterolemia. An extensive review of the cellular biology of atherosclerosis in human arteries is provided by investigators from the U.S.S.R. Results of case-control and incidence studies conducted in Gottingen provide interesting insights into the cardiovascular risks associated with various lipids, lipoproteins, and apoproteins. The use of electrophysiology as a guide to treatment of arrhythmias in patients with coronary heart disease is also discussed. The process of low-density lipoprotein (LDL) uptake by lower-affinity mechanisms is reviewed, and genetic variations in apoprotein E are described. Mechanisms of aging and age-related modifications in blood vessel walls are also summarized, and the relationship of the age-related vascular events to the development of the atherosclerotic process is discussed. The influence of collagen structure to its physiologic function is considered, and attempts to correlate concepts and findings pertaining to the aging of collagen as they relate to age-associated malfunction in arterial walls is described in detail. Finally, an in-depth discussion of the sarcomere, the contractile unit of the cardiac cell, is provided in the closing chapter. All sections are adequately referenced.

Volume 15 is subtitled "Bile Acids in Atherosclerosis" and examines the connection between the metabolism of cholesterol and bile acids and the development of atherosclerosis. This linkage is of extraordinary importance to the practice of medicine. A concise overview of the hepatic regulation of plasma lipoproteins is presented. This provides a framework for a discussion of research methods to study LDL turnover in humans. A useful clinical classification of the causes of mild, moderate, and severe hypercholesterolemia is described. The pivotal role of hepatic apoprotein B-LDL (apo B-LDL) receptor regulation, which is modulated by intracellular cholesterol con-

centration, is introduced early in the text. The mode of action of the bile-acids sequestrants, which are currently the mainstays of treatment for patients with hypercholesterolemia, is defined. In addition, the interaction between HMG-CoA reductase activity and synthesis of hepatic apo B-LDL receptors is presented in an easily understandable format. This is extremely timely since the use of pharmacologic agents that inhibit this early rate-limiting step in hepatic cholesterol synthesis is emerging rapidly. Several chapters are devoted to discussion of the relationship between hyperlipoproteinemia, hypolipidemic treatment, obesity, and gallstone disease. In addition, an overview of the effects of nonlipid-lowering drugs on the metabolism of serum lipoproteins and biliary lipids is provided. A single chapter addresses the uncommon but interesting association between sitosterolemia with xanthomatosis and premature coronary heart disease in affected male members of a family with this rare autosomal recessive condition. Like volume 14, each chapter is extensively referenced. The book is an excellent resource for clinicians, as well as individuals involved in clinical or basic research in this rapidly expanding field.

MICHAEL D. CRESSMAN, DO
Lipid Research Clinic
The Cleveland Clinic Foundation

Biochemistry and Biology of Plasma Lipoproteins,
edited by Angelo M. Scanu and Arthur A. Spector (Dekker).

This text covers selective topics that were initially covered in a series of lectures given to graduate students in biochemistry at the University of Chicago during the spring of 1983. Subsequently, with suitable updating, the authors have managed to provide a proceedings that is current and highlight the most recent developments in the study of lipids, lipoprotein, and apolipoprotein metabolism.

The work begins with a comprehensive overview of plasma lipoproteins. The author elaborates about the physical chemical properties of the major lipoprotein classes and subclasses, which include subfractions such as LDL-1, LDL-2, HDL-2, HDL-3 and VHDL-1 and VHDL-2. The second chapter, entitled "The Biogenesis of Lipoproteins," covers current informa-

tion concerning the metabolism of lipoproteins and the regulation of lipoprotein and apoprotein biosynthesis. The authors discuss the genetic factors, dietary factors, and hormones that are known to affect the concentrations of lipoproteins in the blood. The third chapter describes the extracellular processing of apolipoproteins, while the fourth chapter contains the biochemistry and pathobiology of lipoprotein(a). Chapter five deals with the genetics of human apolipoproteins; the authors review the current knowledge of apolipoprotein gene structure, function, and genetic variation and extensively cover the structure, function, and genetic variation of apo A-I, apo A-II, apo A-IV, apo B, apo C-I, apo C-II, apo C-III, and apo E. Chapter six describes lipid, protein, and carbohydrate composition of biological membranes and chapter seven pertains to membrane cholesterol (the distribution and movement of cholesterol molecules between membranes and across membranes within animal cells). Glycolipid dynamics in serum lipoproteins is covered in chapter eight, while chapter nine is a comprehensive review of lecithin cholesterol acyltransferase and cholesteryl ester transfer/exchange proteins. A section about plasma albumin as a lipoprotein describes a new approach from a physiology and pathobiology standpoint. Apo B-dependent and independent cellular cholesterol homeostasis is an update of the regulation of cholesterol synthesis through the modulation of HMG coenzyme A reductase activity. The chapter entitled "The Role of Apo E in Cholesterol Metabolism" is an excellent overview for one interested in the biology, chemistry, physiology, and pathobiology of apolipoprotein and apolipoprotein metabolism. The biological and clinical implications of LDL receptors are described excellently in chapter 13. An interesting section dealing with immunoregulation by plasma lipoproteins extensively covers a hypothetical model that accounts for the suppression by plasma lipoproteins of mitogen-induced proliferation of lymphocytes in vitro. Additionally, the authors employ the model to evaluate the potential for regulation of the cell cycle by plasma lipoproteins in vivo. The last chapter of the text deals with lipoprotein disorders.

The text also contains two appendixes. The first is entitled "Nucleotide and Corresponding Amino Acid Sequences of Human Apo A-I, Apo A-II, Apo C-I, Apo C-II, Apo C-III, and Apo E cDNA Clones." The second includes drafts dealing with general properties of plasma lipoproteins and apolipoproteins and contains tables that summarize the physical and chemical properties of plasma lipoproteins and apolipoproteins of human subjects.

This book is current, concise, and clear, with information that should be of extreme importance and usefulness not only to the basic and clinical scientist, but also for individuals who are interested in providing the latest information to graduate students and physicians. Like many other research areas, progress in the field of plasma lipoproteins and apolipoproteins has been dependent on the development of new techniques, especially in cell and molecular biology, which is extensively covered in this text.

HERB K. NAITO, PhD

Department of Biochemistry
The Cleveland Clinic Foundation

Biologically Active Atrial Peptides, edited by Barry M. Brenner and John H. Laragh (Raven).

This book presents the proceedings from the First World Congress of Biologically Active Atrial Peptides, held in New York City from May 31 to June 1, 1986. Intense interest has been focused on atrial peptides since their discovery in 1981. This text will be of particular interest to not only clinicians studying cardiovascular and renal disease, but to those working in related basic areas of molecular biology, biochemistry, pharmacology, and renal physiology. Lines of evidence supporting the expression and secretion of atrial natriuretic factor (ANF) from locuses other than the cardiac atria are reviewed. The distribution and molecular forms of ANF in various tissues are discussed, as well as factors involved in the release of atrial natriuretic peptides. Early chapters focus on the functional morphology of the endocrine component of the heart and on the molecular forms of ANF in various tissues. Release of ANF in experimental models and in humans is considered in some detail.

The pharmacokinetics and clinical effects of ANF on the human cardiovascular system are addressed. In particular, the role of ANF in congestive heart failure is given critical consideration and the effects of ANF on the nephron function are considered. An excellent addition to this volume are the many extended abstracts that highlight ongoing research dealing with ANF on multiple-organ systems. This volume provides an extraordinary state-of-the-art review of current knowledge and ongoing research.

DONALD G. VIDT, MD

Department of Hypertension and Nephrology
The Cleveland Clinic Foundation