

CONTENTS

PART I FUNDAMENTALS OF CARDIOVASCULAR DISEASE

- CHAPTER 1 Global Burden of Cardiovascular Disease** 1
Thomas A. Gaziano and J. Michael Gaziano
- CHAPTER 2 Heart Disease in Varied Populations** 21
Clyde W. Yancy
- CHAPTER 3 Ethics in Cardiovascular Medicine** 30
Paul S. Mueller
- CHAPTER 4 Clinical Decision Making in Cardiology** 35
Harlan M. Krumholz
- CHAPTER 5 Measurement and Improvement of Quality of Cardiovascular Care** 42
Thomas H. Lee
- CHAPTER 6 Design and Conduct of Clinical Trials** 49
Elliott M. Antman

PART II MOLECULAR BIOLOGY AND GENETICS

- CHAPTER 7 Principles of Cardiovascular Molecular Biology and Genetics** 57
Elizabeth G. Nabel
- CHAPTER 8 Inherited Causes of Cardiovascular Disease** 70
J.G. Seidman, Reed E. Pyeritz, and Christine E. Seidman
- CHAPTER 9 Genetics of Cardiac Arrhythmias** 81
David J. Tester and Michael J. Ackerman
- CHAPTER 10 Principles of Drug Therapy** 91
Dan M. Roden
- CHAPTER 11 Cardiovascular Regeneration and Tissue Engineering** 99
Piero Anversa, Jan Kajstura, and Annarosa Leri

PART III EVALUATION OF THE PATIENT

- CHAPTER 12 The History and Physical Examination: An Evidence-Based Approach** 107
James C. Fang and Patrick T. O'Gara
- CHAPTER 13 Electrocardiography** 126
David M. Mirvis and Ary L. Goldberger
Guidelines: Electrocardiography 165
David M. Mirvis and Ary L. Goldberger
- CHAPTER 14 Exercise Stress Testing** 168
Bernard R. Chaitman
Guidelines: Exercise Stress Testing 192
Bernard R. Chaitman
- CHAPTER 15 Echocardiography** 200
Heidi M. Connolly and Jae K. Oh
Appropriate Use Criteria: Echocardiography 270
Robert O. Bonow
- CHAPTER 16 The Chest Radiograph in Cardiovascular Disease** 277
Michael A. Bettmann
- CHAPTER 17 Nuclear Cardiology** 293
James E. Udelson, Vasken Dilsizian, and Robert O. Bonow
Appropriate Use Criteria: Nuclear Cardiology 336
James E. Udelson
- CHAPTER 18 Cardiovascular Magnetic Resonance Imaging** 340
Raymond Y. Kwong
Appropriate Use Criteria: Cardiovascular Magnetic Resonance 359
Raymond Y. Kwong
- CHAPTER 19 Cardiac Computed Tomography** 362
Allen J. Taylor
Appropriate Use Criteria: Cardiac Computed Tomography 379
Allen J. Taylor
- CHAPTER 20 Cardiac Catheterization** 383
Charles J. Davidson and Robert O. Bonow

CHAPTER 21 Coronary Arteriography 406

Jeffrey J. Popma

Guidelines: Coronary Arteriography 433

Jeffrey J. Popma

CHAPTER 22 Intravascular Ultrasound Imaging 441

Jean-Claude Tardif and Philippe L. L'Allier

CHAPTER 23 Molecular Imaging in Cardiovascular Disease 448

Peter Libby, Farouc A. Jaffer, and Ralph Weissleder

PART IV HEART FAILURE**CHAPTER 24 Mechanisms of Cardiac Contraction and Relaxation** 459

Lionel H. Opie and Gerd Hasenfuss

CHAPTER 25 Pathophysiology of Heart Failure 487

Douglas L. Mann

CHAPTER 26 Clinical Assessment of Heart Failure 505

Barry Greenberg and Andrew M. Kahn

CHAPTER 27 Diagnosis and Management of Acute Heart Failure Syndromes 517

Mihai Gheorghide, Gerasimos S. Filippatos, and G. Michael Felker

CHAPTER 28 Management of Heart Failure Patients With Reduced Ejection Fraction 543

Douglas L. Mann

Guidelines: Management of Heart Failure 569

Douglas L. Mann

CHAPTER 29 Devices for Monitoring and Managing Heart Failure 578

William T. Abraham

CHAPTER 30 Heart Failure with Normal Ejection Fraction 586

Margaret M. Redfield

CHAPTER 31 Surgical Management of Heart Failure 601

Michael A. Acker and Mariell Jessup

CHAPTER 32 Assisted Circulation in the Treatment of Heart Failure 617

Mandeep R. Mehra and Bartley P. Griffith

CHAPTER 33 Emerging Therapies and Strategies in the Treatment of Heart Failure 627

Stefanie Dimmeler, Douglas L. Mann, and Andreas M. Zeiher

CHAPTER 34 Care of Patients with End-Stage Heart Disease 644

Linda L. Emanuel and Robert O. Bonow

PART V ARRHYTHMIAS, SUDDEN DEATH, AND SYNCOPE**CHAPTER 35 Genesis of Cardiac Arrhythmias: Electrophysiologic Considerations** 653

Michael Rubart and Douglas P. Zipes

CHAPTER 36 Diagnosis of Cardiac Arrhythmias 687

John M. Miller and Douglas P. Zipes

Guidelines: Ambulatory Electrocardiographic and Electrophysiologic Testing 702

John M. Miller and Douglas P. Zipes

CHAPTER 37 Therapy for Cardiac Arrhythmias 710

John M. Miller and Douglas P. Zipes

CHAPTER 38 Pacemakers and Implantable Cardioverter-Defibrillators 745

Charles D. Swerdlow, David L. Hayes, and Douglas P. Zipes

Guidelines: Cardiac Pacemakers and Cardioverter-Defibrillators 765

Charles D. Swerdlow, David L. Hayes, and Douglas P. Zipes

CHAPTER 39 Specific Arrhythmias: Diagnosis and Treatment 771

Jeffrey Olgin and Douglas P. Zipes

CHAPTER 40 Atrial Fibrillation: Clinical Features, Mechanisms, and Management 825

Fred Morady and Douglas P. Zipes

Guidelines: Atrial Fibrillation 838

Fred Morady and Douglas P. Zipes

CHAPTER 41 Cardiac Arrest and Sudden Cardiac Death 845

Robert J. Myerburg and Agustin Castellanos

CHAPTER 42 Hypotension and Syncope 885

Hugh Calkins and Douglas P. Zipes

PART VI PREVENTIVE CARDIOLOGY**CHAPTER 43 The Vascular Biology of Atherosclerosis** 897

Peter Libby

CHAPTER 44 Risk Markers for Atherothrombotic Disease 914

Paul M. Ridker and Peter Libby

- CHAPTER 45 Systemic Hypertension: Mechanisms and Diagnosis** 935
Ronald G. Victor
- CHAPTER 46 Systemic Hypertension: Therapy** 955
Norman M. Kaplan
Guidelines: Treatment of Hypertension 972
Norman M. Kaplan
- CHAPTER 47 Lipoprotein Disorders and Cardiovascular Disease** 975
Jacques Genest and Peter Libby
- CHAPTER 48 Nutrition and Cardiovascular Disease** 996
Dariush Mozaffarian
- CHAPTER 49 Primary and Secondary Prevention of Coronary Heart Disease** 1010
J. Michael Gaziano, Paul M Ridker, and Peter Libby
- CHAPTER 50 Exercise-Based, Comprehensive Cardiac Rehabilitation** 1036
Paul D. Thompson
- CHAPTER 51 Complementary and Alternative Approaches to Management of Patients with Heart Disease** 1042
Edzard Ernst
- PART VII ATHEROSCLEROTIC CARDIOVASCULAR DISEASE**
- CHAPTER 52 Coronary Blood Flow and Myocardial Ischemia** 1049
John M. Canty, Jr.
- CHAPTER 53 Approach to the Patient with Chest Pain** 1076
Marc S. Sabatine and Christopher P. Cannon
- CHAPTER 54 ST-Segment Elevation Myocardial Infarction: Pathology, Pathophysiology, and Clinical Features** 1087
Elliott M. Antman
- CHAPTER 55 ST-Segment Elevation Myocardial Infarction: Management** 1111
Elliott M. Antman and David A. Morrow
Guidelines: Management of Patients with ST-Segment Elevation Myocardial Infarction 1171
Stephen D. Wiviott and Elliott M. Antman
- CHAPTER 56 Unstable Angina and Non-ST Elevation Myocardial Infarction** 1178
Christopher P. Cannon and Eugene Braunwald
Guidelines: Unstable Angina and Non-ST Elevation Myocardial Infarction 1201
Christopher P. Cannon and Eugene Braunwald
- CHAPTER 57 Stable Ischemic Heart Disease** 1210
David A. Morrow and William E. Boden
Guidelines: Chronic Stable Angina 1258
David A. Morrow and William E. Boden
- CHAPTER 58 Percutaneous Coronary Intervention** 1270
Jeffrey J. Popma and Deepak L. Bhatt
Guidelines: Percutaneous Coronary Intervention 1290
Jeffrey J. Popma and Deepak L. Bhatt
- CHAPTER 59 Percutaneous Therapies for Structural Heart Disease in Adults** 1301
John G. Webb
- CHAPTER 60 Diseases of the Aorta** 1309
Alan C. Braverman, Robert W. Thompson, and Luis A. Sanchez
- CHAPTER 61 Peripheral Artery Diseases** 1338
Mark A. Creager and Peter Libby
- CHAPTER 62 Prevention and Management of Stroke** 1359
Larry B. Goldstein
- CHAPTER 63 Endovascular Treatment of Noncoronary Obstructive Vascular Disease** 1368
Andrew C. Eisenhauer, Christopher J. White, and Deepak L. Bhatt
- CHAPTER 64 Diabetes and the Cardiovascular System** 1392
Darren K. McGuire
- PART VIII DISEASES OF THE HEART, PERICARDIUM, AND PULMONARY VASCULATURE BED**
- CHAPTER 65 Congenital Heart Disease** 1411
Gary D. Webb, Jeffrey F. Smallhorn, Judith Therrien, and Andrew N. Redington
- CHAPTER 66 Valvular Heart Disease** 1468
Catherine M. Otto and Robert O. Bonow
Guidelines: Management of Valvular Heart Disease 1530
Robert O. Bonow and Catherine M. Otto

CHAPTER 67 Infective Endocarditis 1540

Adolf W. Karchmer

Guidelines: Infective Endocarditis 1558

Robert O. Bonow

CHAPTER 68 The Dilated, Restrictive, and Infiltrative**Cardiomyopathies 1561**

Joshua M. Hare

CHAPTER 69 Hypertrophic Cardiomyopathy 1582

Barry J. Maron

CHAPTER 70 Myocarditis 1595

Peter Liu and Kenneth L. Baughman

CHAPTER 71 Chagas' Disease 1611

José A.F. Ramires, Andrei C. Sposito, Edécio Cunha-Neto, and Maria de Lourdes Higuchi

CHAPTER 72 Cardiovascular Abnormalities in HIV-Infected Individuals 1618

Stacy D. Fisher and Steven E. Lipshultz

CHAPTER 73 Toxins and the Heart 1628

Richard A. Lange and L. David Hillis

CHAPTER 74 Primary Tumors of the Heart 1638

Bruce McManus

CHAPTER 75 Pericardial Diseases 1651

Martin M. LeWinter and Marc D. Tischler

CHAPTER 76 Traumatic Heart Disease 1672

Matthew J. Wall, Jr., Peter I. Tsai, and Kenneth L. Mattox

CHAPTER 77 Pulmonary Embolism 1679

Samuel Z. Goldhaber

CHAPTER 78 Pulmonary Hypertension 1696

Stuart Rich

CHAPTER 79 Sleep Apnea and Cardiovascular Disease 1719

Virend K. Somers

PART IX CARDIOVASCULAR DISEASE IN SPECIAL POPULATIONS**CHAPTER 80 Cardiovascular Disease in the Elderly 1727**

Janice B. Schwartz and Douglas P. Zipes

CHAPTER 81 Cardiovascular Disease in Women 1757

L. Kristin Newby and Pamela S. Douglas

CHAPTER 82 Pregnancy and Heart Disease 1770

Carole A. Warnes

Guidelines: Pregnancy and Heart Disease 1780

Carole A. Warnes and Thomas H. Lee

CHAPTER 83 Exercise and Sports Cardiology 1784

Gary J. Balady and Philip A. Ades

CHAPTER 84 Medical Management of the Patient Undergoing Cardiac Surgery 1793

Richard J. Gray and Dhun H. Sethna

CHAPTER 85 Anesthesia and Noncardiac Surgery in Patients with Heart Disease 1811

Lee A. Fleisher and Joshua Beckman

Guidelines: Reducing Cardiac Risk with Noncardiac Surgery 1824

Lee A. Fleisher and Joshua Beckman

PART X CARDIOVASCULAR DISEASE AND DISORDERS OF OTHER ORGANS**CHAPTER 86 Endocrine Disorders and Cardiovascular Disease 1829**

Irwin Klein

CHAPTER 87 Hemostasis, Thrombosis, Fibrinolysis, and Cardiovascular Disease 1844

Jeffrey I. Weitz

CHAPTER 88 Rheumatic Fever 1868

B. Soma Raju and Zoltan G. Turi

CHAPTER 89 Rheumatic Diseases and the Cardiovascular System 1876

Alexandra Villa-Forte and Brian F. Mandell

CHAPTER 90 The Cancer Patient and Cardiovascular Disease 1893

Thomas Force and Ming Hui Chen

CHAPTER 91 Psychiatric and Behavioral Aspects of Cardiovascular Disease 1904

Viola Vaccarino and J. Douglas Bremner

CHAPTER 92 Neurologic Disorders and Cardiovascular Disease 1916

William J. Groh and Douglas P. Zipes

CHAPTER 93 Interface Between Renal Disease and Cardiovascular Illness 1934

Peter A. McCullough

CHAPTER 94 Cardiovascular Manifestations of Autonomic Disorders 1949

Virend K. Somers