Contents

VOLUME 1

SECTION 1 Basic Cardiology

1. Cardiac Anatomy 3
   Melvin D Cheitlin, Philip C Ursell
2. Cardiac Function in Physiology and Pathology 21
   Joel S Karliner, Jeffrey Zimmet
3. Coronary Circulation in Physiology and Pathology 32
   Kanu Chatterjee

SECTION 2 Cardiovascular Pharmacology

4. Diuretics 53
   Michael E Ernst
5. Angiotensin, Aldosterone, and Renin Inhibition in Cardiovascular Disease 71
   Gary S Francis, M Chadi Alraies, Suma H Konety, Kanu Chatterjee
6. Positive Inotropic Drugs 86
   Carl V Leier, Garrie J Haas, Philip F Binkley
7. Antilipid Agents 104
   Jennifer G Robinson
8. Antithrombotic and Antiplatelet Agents 120
   Louis P Kohl, Ethan Weiss

SECTION 3 Diagnosis

9. History 155
   Kanu Chatterjee
10. Physical Examination 162
    Kanu Chatterjee

11. Plain Film Imaging of Adult Cardiovascular Disease 183
Brad H Thompson, Edwin JR van Beek

12. Electrocardiogram 197
Kanu Chatterjee

13. ECG Exercise Testing 216
Abhimanyu (Manu) Uberoi, Victor F Froelicher

14. The Left Ventricle 232
Rakesh K Mishra, Nelson B Schiller

15. Ventricular Function: Assessment and Clinical Application 250
Kanu Chatterjee, Wassef Karrowni, William Parmley

16. Transthoracic Echocardiography 265
Byron F Vandenberg, Richard E Kerber

17. Stress Echocardiography 290
Ellen EI Gordon, Richard E Kerber

18. Transesophageal Echocardiography 309
Parijat S Joy, Gardar Sigurdsson, Seyed M Hashemi, Paul Lindower, Richard E Kerber

19. Real Time Three-dimensional Echocardiography 322
Manjula V Burri, Richard E Kerber

20. Intravascular Coronary Ultrasound and Beyond 348
Teruyoshi Kume, Yasuhiro Honda, Peter J Fitzgerald

21. Cardiac Computed Tomography 378
Luke M Gabe, Gardar Sigurdsson

22. Cardiovascular Magnetic Resonance 397
Robert M Weiss

23. Cardiac Hemodynamics and Coronary Physiology 416
Amardeep K Singh, Andrew Boyle, Yerem Yeghiazarians

24. Cardiac Biopsy 428
Vijay U Rao, Teresa De Marco

25. Swan–Ganz Catheters: Clinical Applications 445
Dipti Gupta, Wassef Karrowni, Kanu Chatterjee

26. Coronary Angiography and Catheter-based Coronary Intervention 458
Elaine M Demetroulis, Mohan Brar

SECTION 4 Electrophysiology

27. Arrhythmia Mechanisms
Mark Anderson, William Osler

28. Antiarrhythmic Drugs 519
Rakesh Gopinathannair, Brian Olshansky

29. Electrophysiology Studies 542
Indrajit Choudhuri, Masood Akhtar

30. Syncope 567
Vijay Ramu, Fred Kusumoto, Nora A Goldschlager

31. Atrial Fibrillation 590
Michael C Giudici, Hardik Doshi, Basil Abu-El-Haija

32. Supraventricular Tachycardia 602
Renee M Sullivan, Wei Wei Li, Brian Olshansky

33. Clinical Spectrum of Ventricular Tachycardia 623
Masood Akhtar, Dreema Awan, Indrajit Choudhuri

34. Bradycardia and Heart Block 638
Arthur C Kendig, James B Martins

35. Arrhythmogenic Right Ventricular Dysplasia/Cardiomyopathy 644
Richard NW Hauer, Frank I Marcus, Moniek GJP Cox

36. Long QT, Short QT and Brugada Syndromes 658
Nathaniel P Murphy, Ellen R Lubbers, Peter J Mohler

37. Surgical and Catheter Ablation of Cardiac Arrhythmias 668
Jason D Roberts, Mitsuharu Kawamura, Yanfei Yang, David Singh, Nitish Badhwar, Melvin Scheinman

38. Cardiac Resynchronization Therapy 703
David Singh, Nitish Badhwar

39. Ambulatory Electrocardiographic Monitoring 723
Alexander Mazur, Renee M Sullivan, Brian Olshansky

40. Cardiopulmonary Arrest and Resuscitation 737
Christine Miyake, Richard E Kerber

41. Risk Stratification for Sudden Cardiac Death 753
Roque B Arteaga, James B Martins, Dwayne N Campbell

42. Cardiocerebral Resuscitation for Primary Cardiac Arrest 761
Gordon A Ewy, Jooby John

SECTION 5 Coronary Heart Diseases

43. Coronary Heart Disease: Risk Factors 783
Sula Mazimba, David Zhuo

44. Changing Focus in Global Burden of Cardiovascular Diseases 804
Rajeev Gupta, Prakash C Deedwania

45. Chest Pain 814
Raveen Pal, Kirsten E Fleischmann

46. Acute Coronary Syndrome I: Unstable Angina and Non-ST-Segment Elevation Myocardial Infarction 827
Rami Kafa, Theresa M Brennan, Saket Girotra

47. Acute Coronary Syndrome II: ST-Elevation Myocardial Infarction, Complications and Postmyocardial Infarction Care 847
Yohannes A Bayissa, Patricia Lounsbury, Saket Girotra, Theresa M Brennan

48. Management of Patients with Chronic Coronary Artery Disease and Stable Angina 882
Prakash C Deedwania, Enrique V Carbajal

49. Variant Angina 893
Reza Ardehali, Alexandra Catherine Milin, John Speer Schroeder

50. Cardiogenic Shock in Acute Coronary Syndromes 904
Eugen Ivan, Andrew D Michaels

51. Acute Right Ventricular Infarction 915
James A Goldstein

52. Surgical Therapy in Chronic Coronary Artery Disease 926
Joss Fernandez, Samad Hashimi, Karam Karam, Jose Torres, Robert Saeid Farivar

VOLUME 2

SECTION 6 Valvular Heart Diseases

53. Aortic Valve Disease 941
Blasé A Carabello

54. Mitral Valve Disease 956
Satyavan Sharma, Bharat V Dalvi

55. Tricuspid Valve Disease: Evaluation and Management 974
Kanu Chatterjee

56. Congenital Isolated Right Ventricular Outflow Tract Disease 983
Jullien Hoffman

57. Catheter-based Treatment of Valvular Heart Disease 997
Hjalti Gudmundsson, Philip A Horwitz

58. Infective Endocarditis 1008
Ehrin J Armstrong

59. Prosthetic Heart Valves 1027
Byron F Vandenberg

60. Antithrombotic Therapy in Valvular Heart Disease 1054
Michael H Crawford

SECTION 7 Vascular Diseases

61. Evaluation and Management of the Patient with Essential Hypertension 1063
Edward D Frohlich

62. Peripheral Vascular and Cerebrovascular Disease 1079
Jayant Khitha, Louis Kostopoulos, Tanvir Bajwa

63. Aortic Dissection 1104
Ariane Neyou

64. Endovascular Treatment of Aortic Aneurysm and Dissection 1109
Timothy AM Chuter

65. Autonomic Dysfunction and the Cardiovascular System 1121
Milena A Gebska, Christopher Benson

SECTION 8 Heart Failure

66. Heart Failure: Epidemiology
Kanu Chatterjee

67. Heart Failure: Diagnosis 1149
Kanu Chatterjee

68. Systolic Heart Failure: Heart Failure with Reduced Ejection Fraction 1164
Kanu Chatterjee

69. Diastolic Heart Failure: Heart Failure with Preserved Ejection Fraction 1187
Israel Belenkie, Nathan Bracey, Henry J Duff, John V Tyberg

70. Anemia in Patients with Chronic Heart Failure: Prevalence, Mechanism, Significance and Treatment 1199
Chakradhari Inampudi, James Prempeh, Barry M Massie, Jennifer Goerbig-Campbell

71. Hyponatremia and Congestive Heart Failure 1212
Naveen Bellam, Anne Mani, David J Whellan

72. Cardiorenal Syndrome: The Interplay between Cardiac and Renal Function in Patients with Congestive Heart Failure 1224
Nestor Mercado, J Thomas Heywood

73. Acute Heart Failure Syndromes 1241
Peter S Pang, Michel Komajda, Mihai Gheorghiade

74. Cardiopulmonary Exercise Testing and Training in Heart Failure 1256
Ileana L Piña

75. Hibernating Myocardium 1267
Kanu Chatterjee

76. Advanced Cardiac Therapies for End-stage Heart Failure: Cardiac Transplantation and Mechanical Circulatory Support 1278
Ashrith Guha, Paulino Alvarez, Frances Johnson

77. Palliative Medicine and End-of-life Care in Heart Failure 1296
Bria Giacomino, KellyAnn Light-McGroary

SECTION 9 Myocardial and Pericardial Diseases

78. Hypertrophic Cardiomyopathy 1317
M Fuad Jan, A Jamil Tajik

79. Dilated Cardiomyopathy 1370
Jalal K Ghali

80. Restrictive and Obliterative Cardiomyopathies 1387
G Vijayaraghavan, S Sivasankaran

81. Peripartum Cardiomyopathy 1410
Mohammad El Baba, Uri Elkayam, Nudrat Khatri, Mohammad Barakat, Linda Cadaret

82. Chemotherapy-induced Cardiomyopathy 1415
Wassef Karrowni, Kanu Chatterjee

83. Pericardial Disease 1425
Mackram F Eleid, Masud H Khandaker, Rick A Nishimura

84. Radiation-induced Heart Disease 1440
Wassef Karrowni, Kanu Chatterjee

85. Chagas Disease 1448
Tariq Hameed, Diane C Kraft, Richard E Kerber

SECTION 10 Pulmonary Vascular Disease and Adult Congenital Heart Disease

86. Congenital Heart Disease in the Adult Patient 1459
Deepa Upadhyaya, Elyse Foster

SECTION 11 Secondary Disorders of the Heart

87. Insulin Resistance and Cardiomyopathy 1503
Dipanjan Banerjee, Ronald Witteles, Michael B Fowler

88. Cardiac Complications of Substance Abuse 1516
Hugh H West

89. HIV/AIDS and Cardiovascular Disease 1539
Katherine H Chau, Priscilla Y Hsue

90. Systemic Autoimmune Diseases and the Heart 1553
Namrata Singh, Masumi Arakane, Scott A Vogelgesang

91. Cardiac Neoplastic Disease 1570
Elena Ladich, Naima Carter-Monroe, Renu Virmani

92. Kidney and the Heart 1590
Satyarth Kulshrestha, Sarika Deshmukh, Mony Fraer

93. Endocrine Heart Disease 1604
Aarthi Arasu, Umesh Masharani

94. Cardiovascular Trauma as Seen by the Cardiologist 1621
Arthur Hill, Melvin D Cheitlin

95. Venous Thromboembolism and Cor Pulmonale 1642
Jorge Velazco, Christopher Spradley, Bernardo Menajovsky, Alejandro C Arroliga

SECTION 12 Relevant Issues in Clinical Cardiology

96. Noncardiac Surgery in Cardiac Patients 1665
Gabriel Gregoratos, Ameya Kulkarni

97. Gender and Cardiovascular Disease 1695
Susan Zhao, Rita Redberg

98. Overview of the Athlete's Heart 1716
Aaron L Baggish, Paul D Thompson

99. Cardiovascular Aging 1727
Samuel Bernard, Adam Castano, Mathew S Maurer

SECTION 13 Preventive Strategies for Coronary Artery Diseases

100. Pathophysiology of Atherothrombosis 1757
PK Shah

101. Dyslipidemia 1767
Mary Malloy, John Kane

102. Smoking and Air Pollution 1775
Joaquin Barnoya, Ernesto Viteri, Stanton A Glantz

103. Exercise and Rehabilitation 1798
Lisa C Bratzke, Kathleen Miller

SECTION 14 Preventive Strategies for Other Cardiovascular Diseases

104. Prevention of Heart Failure 1811
Justin L Grodin, Clay A Cauthen, WH Wilson Tang

105. Stroke: Prevention and Treatment 1821
Nandakumar Nagaraja, Harold P Adams

106. Rheumatic Fever 1841
V Jacob Jose

SECTION 15 Evolving Concepts

107. Cardiovascular Pharmacogenetics 1849
Deepak Voora, Victor J Dzau, Geoffrey S Ginsburg

108. Preventing Errors in Cardiovascular Disease 1866
Robert M Wachter

109. Economics in Cardiovascular Medicine 1873
Paul A Heidenreich

110. Stem Cell Therapy in Cardiology 1883
Chakradhari Inampudi, Franca S Angeli, Yerem Yeghiazarians, Barry London

111. Gene Therapy and Angiogenesis 1908
Matthew L Springer

112. Sleep and the Heart 1925
Tomas Konecny, Virend Somers