Contents

SECTION I **EPIDEMIOLOGY AND PATHOPHYSIOLOGY**

1 Classification and Diagnosis of Acute Coronary Syndromes 1

David A. Morrow and Eugene Braunwald

2 Global Evolving Epidemiology, Natural History, and Treatment Trends of Myocardial Infarction 11

Thomas A. Gaziano and J. Michael Gaziano

3 New and Emerging Insights into the **Pathobiology of Acute Myocardial** Infarction 22

Erling Falk and Jacob F. Bentzon

4 Mechanisms of Myocardial Ischemic Injury, Healing, and Remodeling 34

Matthias Nahrendorf, Filip K. Swirski, and Peter Libby

SECTION II INITIAL EVALUATION AND RISK **STRATIFICATION**

5 Prehospital Assessment and Systems of Care 43

Timothy D. Henry and David C. Lange

6 Clinical Practice/Controversy **Clinical Approach to Suspected Acute** Myocardial Infarction 55 David A. Morrow

Optimal Use of Cardiac Troponin in Patients with Chest Discomfort 66

Allan S. Jaffe

8 Other Biomarkers and the Evaluation of Patients with Suspected Myocardial Ischemia 77

Christian Mueller

Cardiac Imaging for Patients with Acute Chest Pain in the Emergency Department 89 Udo Hoffmann and James E. Udelson

10 Optical Coherence Tomography and Other Emerging Diagnostic Procedures for Vulnerable Plaque 103

Ik-Kyung Jang and Daniel S. Ong

Risk Stratification in Acute Myocardial Infarction 114

L. Kristin Newby, Amit N. Vora, and Christopher B. Granger

12 Clinical Practice/Controversy **Emergency Department Evaluation of the** Lower-Risk Patient: Whom Can You Send Home? 128 Benjamin M. Scirica

SECTION III TREATMENT

13 Management Principles in Myocardial Infarction 139 Keith A. A. Fox

14 Clinical Practice/Controversy Selection of Reperfusion Therapy and Transfer Strategies for Patients with ST-Elevation Myocardial Infarction 154 Kevin R. Bainey and Paul W. Armstrong

- 15 Fibrinolytic Therapy for Patients with ST-Elevation Myocardial Infarction 169 Peter R. Sinnaeve and Frans Van de Werf
- 16 Revascularization in Non-ST-Elevation Acute Coronary Syndrome: For Whom, When, and How? 180 Stefan James, Daniel Lindholm, and Christoph Varenhorst
- 17 Approach to Percutaneous Coronary Intervention in Myocardial Infarction 190 Deepak L. Bhatt and Jeremiah P. Depta
- 18 Clinical Practice/Controversy **Selection of Initial Anticoagulant** Therapy 207 Johanne Silvain, Lee Nguyen, and Gilles Montalescot
- 19 Overview of Antiplatelet Therapy for Myocardial Infarction 221 Dominick J. Angiolillo and Francesco Franchi
- 20 Clinical Practice/Controversy **Individualization of Antiplatelet Therapy** for Patients with Acute Coronary Syndromes 239 Jean Philippe Collet and Guillaume Cayla
- 21 Old and New Oral Anticoagulant Therapy After Myocardial Infarction 249 Jessica L. Mega and Edward T. Carreras
- 22 Stem Cell Therapy in Patients with Myocardial Infarction 259 Roberto Bolli and Shahab Ghafghazi

SECTION IV IN-HOSPITAL COMPLICATIONS AND ASSESSMENT

- 23 Recurrent Ischemia and Recurrent Myocardial Infarction: Detection, Diagnosis, and Outcomes 275

 Harvey D. White
- 24 Reperfusion Injury: Prevention and Management 286
 Robert A. Kloner and Sharon L. Hale
- 25 Heart Failure and Cardiogenic Shock After Myocardial Infarction 295

 David A. Morrow and Erin A. Bohula
- Mechanical Complications of Myocardial Infarction 314James C. Fang and Jack H. Morshedzadeh
- 27 Clinical Practice/Controversy
 Mechanical Circulatory Support for
 Complications of Myocardial Infarction: Role of
 Currently Available Devices 327
 E. Magnus Ohman and Jacob A. Doll
- 28 Arrhythmias and Sudden Cardiac Death After Myocardial Infarction 339
 Kalyanam Shivkumar, Jason Bradfield, and Una Buckley
- 29 Epidemiology and Management of Bleeding in Acute Myocardial Infarction 353

 Sunil V. Rao
- 30 Clinical Practice/Controversy
 Approach to Noninvasive Testing After
 Presentation with Acute Myocardial
 Infarction 364
 Todd D. Miller and Nandan S. Anavekar

31 Echocardiography in Patients with Myocardial Infarction 375

Anique Ducharme and Jean-Claude Tardif

32 Nuclear Cardiology Techniques After Myocardial Infarction 393

Marcelo F. Di Carli and Róisín Morgan

33 Cardiac Magnetic Resonance Imaging After Myocardial Infarction 406

John D. Grizzard and Raymond J. Kim

SECTION V DISCHARGE AND BEYOND

34 New Concepts in Cardiac Rehabilitation and Secondary Prevention After Myocardial Infarction 419

Rod S. Taylor and Ann-Dorthe Olsen Zwisler

- 35 Clinical Practice/Controversy
 Antiplatelet Therapy After Myocardial
 Infarction 434

 Marc P. Bonaca, Marc S. Sabatine, and David A. Morrow
- 36 Tackling the Problem of Adverse Ventricular Remodeling After Myocardial Infarction 449 Antonio Abbate

Index 462