Contents

1. Introduction 1
G. B. John Mancini

2. Physics and Instrumentation for Digital Angiocardiography 3
Ruediger Brennecke

3. A Comparative Summary of Image Processing Methods in Digital Angiography 19
Robert A. Kruger

4. Archiving Digitally Formatted Image Data 37
Glendon G. Cox and Samuel J. Dwyer III

5. Automated Edge Detection in the Analysis of Cardiac Function and Coronary Anatomy 55
David L. Pope, Rudy E. van Bree, and Dennis L. Parker

6. Clinical Methods in Cardiac Digital Angiography: Injection Techniques and Effects of Contrast Media 87
G. B. John Mancini

7. Assessment of Left Ventricular Function by Intraveneous and Direct Low Contrast Dose Digital Ventriculography 99
G. B. John Mancini

8. Value and Limitations of Densitometry in the Calculation of Right and Left Ventricular Ejection Fraction from Digital Angiography 115
Steven E. Nissen, Jonathan L. Elion, and Anthony N. DeMaria

9. Exercise Digital Subtraction Ventriculography 131
John Yiannikas and Robert Detrano

10. The End-Systolic Pressure-Volume Relationship: Current Concepts and the Role of Imaging in Its Calculation 143
Mark R. Starling and G. B. John Mancini

11. Assessment of Wall Thickening, Muscle Mass, and Infarct Size 169
J. H. Bürsch

12. Toward Newer Methods of Assessing Regional Ventricular Function in Humans 187
G. B. John Mancini

13. The Role of Digital Subtraction Angiography in Congenital and Valvular Heart Disease 199
J. H. Bürsch and P. H. Heintzen

14. Quantitative Coronary Arteriography 219
Michael T. LeFree, Sandra B. Simon, Mark L. Sanz, Robert A. Vogel, and G. B. John Mancini

15. Parametric Imaging in Cardiovascular Digital Angiography 239
O. Ratib and W. Rutishauser
16. Digital Coronary Angiography: Approaches Using Intravenous and Direct Methods 253
Edward G. Toggart and Charles A. Mistretta
17. Assessment of Coronary Flow and Myocardial Perfusion with Digital Radiography 281
Robert A. Vogel and G. B. John Mancini
18. Digital Radiographic Assessment of Coronary Angioplasty and Bypass Graft Revascularization Results 291
Eric R. Bates and G. B. John Mancini
19. Quantitative Coronary Arteriography, Stress Test, and Coronary Flow Reserve Measurements: Comparative Studies in Animals and Humans 301
G. B. John Mancini

Subject Index 315