

Contents

Preface	ix
List of Contributors	xi
I. HEMODYNAMICS	
1. Pressure, Flow and Impedance in Blood Vessels W.R. Milnor	1
2. Fluid Dynamic Considerations in the Application of Ultrasound Flowmetry R.M. Nerem	13
3. Hemodynamic Effects of Stenosis D.F. Young and T.R. Rogge	37
4. Blood Velocity, Velocity Profiles, Disturbances of Flow and Phasic Dimensional Changes of Valve Annuli and Great Vessels P.D. Stein and H.N. Sabbah	63
5. Measurement of Coronary Blood Flow in Conscious Animals S.F. Vatner, M. Young and T.A. Patrick	81
6. Hemodynamics of the Aorta: The Normal and the Pathological B. Diebold and P.A. Peronneau	101
7. Cerebral and Peripheral Hemodynamics D.P. Giddens, B.K. Bharadvaj and D.N. Ku	125
8. Fetal Circulation: Applications of Doppler Ultrasound K.L. Reed	149
9. Comprehensive Analysis of Cardiovascular Dynamics R.F. Rushmer	165
II. INSTRUMENTATION	
10. The Ultrasonic Doppler Spectrum J.M. Reid	179
11. On Measurement of Maximum Velocity in Blood Jets in the Heart B.A.J. Angelsen, K. Kristoffersen and H. Torp	201
12. Pulsed Ultrasound Doppler Blood Flow Measurement Systems M.B. Histan	221
13. Doppler Signal Processing D.H. Evans	239

14. **The 20 MHz Pulsed Ultrasonic Doppler Velocimeter: Recent Developments**
W.F. Blair and T.D. Brown 263
15. **Pulsed Doppler Coronary Artery Catheter Transducers**
C.J. Hartley, K.L. Richards and J.S. Cole 279
16. **Flow Measurement without Imaging: Application to Cardiac Output**
L.L. Huntsman 299
17. **Flow Measurement with Imaging**
R.E. Daigle 313
18. **Disease State: A New Perspective for Understanding Instrumentation and its Role in Clinical Diagnosis**
D.W. Baker 329

III. CLINICAL AND RESEARCH APPLICATIONS

19. **Cerebral Vascular System**
D.E. Strandness 339
20. **Peripheral Vascular System**
J.P. Woodcock 357
21. **Splanchnic Blood Flow Measurement**
R.W. Gill 369
22. **Ultrasonic Flowmetry in the Renal Vascular System**
P.S. Avasthi 391
23. **Pulsed Doppler Evaluation of the Fetal Circulation**
W. Berman, D.C. Alverson, M. Eldridge and T. Dillon 411
24. **Aortic Flow Velocity and Stroke Volume**
J.M. Gardin 431
25. **Doppler Calculation of Cardiac Shunts**
D.J. Sahn 445
26. **A New 2-D and 3-D Approach to Doppler Valvular Regurgitation**
D. Kalmanson and C. Veyrat 461
27. **Valvular Stenosis**
L.K. Hatle 477
28. **Assessment of Left Ventricular Diastolic Function: Validation of Doppler Techniques**
D. Fisher and W.F. Voyles 497
29. **Ultrasonic Flood Flow Measurement in Clinical Cardiology: Sources of Conflict and Prospects for the Future**
A.S. Pearlman 511
- Index** 533