



Blood pressure and arterial wall mechanics in cardiovascular diseases

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- Abstract: In cardiovascular prevention, there has traditionally been a small number of cardiovascular risk factors to evaluate and manage, such as hypertension, diabetes, hyperlipidemia and smoking. Recently, it has been recognized that new mechanical factors should be identified, and specifically involves pulsatile arterial hemodynamic parameters, such as arterial stiffness, pulse pressure and, to a lesser extent, augmentation index and pulse pressure amplification. Blood Pressure and Arterial Wall Mechanics in Cardiovascular Diseases has been written to facilitate understanding of these new concepts regarding blood pressure and cardiac risk, and prepare the reader for the considerable evolution of the topic in the years to come. Much has been learned already regarding the management of these patients, and this book presents extensive data on the techniques needed to maximize their outcomes.
- Contents: Part I. Blood Pressure: Basic Concepts of Steady and Pulsatile Arterial Hemodynamics – 1. Arterial Stiffness, Wave Reflection, Wave Amplification: Basic Concepts, Principles of Measurement and Analysis in Humans – 2. Large Arteries, Microcirculation, and Mechanisms of Hypertension – 3. Direct Measurement of Local Arterial Stiffness and Pulse Pressure – 4. Ventricular-Arterial Coupling and Mechanism of Wave Reflections – 5. Determination of Systemic and Regional Arterial Structure and Function – 6. Animal Models for Studies of Arterial Stiffness – 7. Elastin, Calcium and Age-Related Stiffening of the Arterial Wall – 8. Genetic and Cellular Aspects of Arterial Stiffness – Part II. Blood Pressure and Sodium Balance: Pathophysiological Mechanisms and Cardiovascular Risk – 9. Mechanical Stress and the Arterial Wall – 10. Pulsatile Stress, Arterial Stiffness, and Endothelial Function – 11. Hypoxia, Arterial Blood Pressure, and Microcirculation – 12. The Reality of Aging Viewed from the Arterial Wall – 13. Emerging Aspects of Angiotensin Biology and Their Potential Role in the Vasculature – 14. Arterial Stiffness and the Sympathetic Nervous System – 15. Oxidative Stress and Hypertension – 16. Heart Failure with Preserved Ejection

Stress and Hypertension – 16. Heart Failure with Preserved Ejection Fraction – 17. Structural Alterations in Arterial Stiffness: Role of Arterial Fibrosis – 18. Salt and Multiorgan Damage in Hypertension: Vascular Stiffening and Cardiorenal Structural Dysfunction Responses – 19. Preventive Lessons from Hypertension and Myocardial Infarction: Treating Asymptomatic Individuals to Lower the Risk for Subsequent Cardiovascular Events – Part III. Hypertension: Evaluation of Cardiovascular Risk and Organ Damage – 20. Value of Brachial and Central Blood Pressure for Predicting Cardiovascular Events – 21. Predictive Value of Arterial Stiffness for Cardiovascular Events – 22. Heart Rate, Synchrony and Arterial Hemodynamics – 23. Pulse Pressure Amplification and Arterial Stiffness in Middle Age – 24. Arterial Stiffness, Central Blood Pressure and Cardiac Remodelling: From Cardiac Hypertrophy to Heart Failure – 25. The Relationship Between Aortic Stiffness, Microvascular Disease in the Brain and Cognitive Decline: Insights into the Emerging Epidemic of Alzheimer's Disease – 26. Arterial Stiffness and Risk in Various Cardiovascular Diseases – 27. Large Artery Remodeling and Chronic Kidney Disease – 28. Arterial Changes in Renal Transplantation – 29. Arterial Stiffness, Central Blood Pressure and Coronary Heart Disease – Part IV. Clinical Involvement: Role of Age, Sex, Inflammatory and Metabolic Alterations – 30. Modifications of Blood Pressure Profiles in the Very Old: Role of Frailty and Comorbidities – 31. Arterial Stiffness and Amplification in the Very Old – 32. Hypertension in Men and Women: Is It Different? – 33. Obesity, Metabolic Syndrome, Diabetes and Smoking – 34. Glucose, Insulin and Potential Strategies of Vascular Stiffening – 35. Arterial Stiffness in Chronic Inflammation – Part V. Stratifications of Cardiovascular Risk and Therapeutic Consequences on Arterial Stiffness and Wave Reflections – 36. Outcome-Driven Thresholds for Pulse Pressure on Office and Out-of-the-Office Blood Pressure Measurement – 37. Properties of Central Arteries in Populations of Different Ethnicity: Ethnicity and Central Arteries – 38. Changing Concepts on the Role of Blood Pressure Reduction in Stroke Prevention with the Focus on β -Blocking Agents – 39. Decreasing Arterial Stiffness and/or Wave Reflections Independently of Mean Arterial Pressure: Effect of Antihypertensive Drugs (Part 1) – 40. Decreasing Arterial Stiffness and/or Wave Reflections Independently of Mean Arterial Pressure: Effect of Non-antihypertensive Drugs (Part 2) – 41. Blood Pressure Variability: Measurements, Influential Factors, Prognosis and Therapy – 42. Nitrate: The Ideal Drug Action for Isolated Systolic Hypertension in Elderly? – 43. De-stiffening Strategy, Sodium Balance, and Blockade of the Renin-Angiotensin System – 44. Long-Term Effects of Calcium Channel Blockers on Central and Peripheral Arteries - - 45. Exercise Training for the Modification of Arterial Stiffness and Wave Reflections.

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