Microvascular Mechanics Hemodynamics Of Systemic And Pulmonary Microcirculation

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Blood Pressure and Arterial Wall Mechanics in Cardiovascular Diseases Morgan & Claypool Publishers
First multi-year cumulation covers six years: 1965-70.
Inflammation and the Microcirculation Cambridge University Press
Provides a comprehensive understanding of perioperative hemodynamic monitoring and goal directed therapy, emphasizing practical guidance for implementation at the bedside.
Biomedical Index to PHS-supported Research John Wiley & Sons
Comprehensive and clinically relevant, the 3rd Edition of Critical Care Nephrology provides authoritative coverage of the latest advances in critical care procedures for patients with renal diseases or disorders. Using common guidelines and standardized approaches to critically ill patients, this multidisciplinary reference facilitates better communication among all physicians who care for critically ill patients suffering from kidney disease, electrolyte and metabolic imbalances, poisoning, severe sepsis, major organ dysfunction, and other pathological events. Offers detailed discussions of different forms of organ support, artificial organs, infections, acute illness occurring in chronic hemodialysis patients, and much more. Places a special emphasis on therapeutic interventions and treatment procedures for a hands on clinical reference tool. Presents information clearly, in a format designed for easy reference – from basic sciences to clinical syndromes to diagnostic tools. Covers special populations such as children, diabetic patients, and the elderly. An exceptional resource for nephrologists, intensivists, surgeons, or critical care physicians – anyone who treats critically ill renal patients. Shares a combined commitment to excellence lead by Drs. Claudio Ronco, Rinaldo Bellomo, John Kellum, and Zaccaria Ricci – unparalleled leaders in this field. Addresses key topics with expanded coverage of acute kidney injury, stress biomarkers, and sepsis, including the latest developments on mechanisms and management. Provides up-to-date information on extracorporeal therapies from new editor Dr. Zaccaria Ricci.
American Journal of Physiology Academic Press
Vols. for 1898-1941, 1948-56 include the Society's proceedings (primarily abstracts of papers presented at the 10th-53rd annual meetings, and the 1948-56 fall meetings)
Mechanisms of Vascular Disease Springer Science & Business Media
A review of our current understanding of the physical phenomena associated with the flow of blood through the brain, applying these concepts to the physiological and medical aspects of cerebrovascular disease so as to be useful to both the scientist and the clinician. Specifically the book discusses the physical bases for the development of cerebrovascular disease and for its clinical consequences; specific current and possible future therapies; experimental, clinical, and computational techniques used to investigate cerebrovascular disease; blood dynamics and its role; imaging methods used in the diagnosis and management of cerebrovascular disease. Intended as a one- or two-semester course in biophysics, biomedical engineering or medical physics, this is also of interest to medical students and interns in neurology and cardiology, and provides a useful overview of current practice for researchers and clinicians.
Microvascular Research: Biology and Pathology, Two-Volume Set Cambridge University Press
In cardiovascular prevention, there is classically a small number of cardiovascular risk factors to treat, such as hypertension, diabetes, hyperlipidemia and smoking excess, which are widely detected and treated. Recently, it has been widely recognized that new mechanical factors should be detected and treated and involves specifically pulsatile arterial hemodynamic (PAH) parameters such as: arterial stiffness, pulse pressure, and, to a lesser extent, augmentation index and pulse pressure amplification. The pedagogic aspect of this new CV specialty involves 3 principal parts: a. –Basic concepts and pathophysiological mechanisms of PAHb. –Clinical aspects and end-organ damage in PAHc. – Clinical pharmacology and therapeutics of PAH This book represents the first that spans basic science and clinical management of this new CV subspecialty. Much has been learned regarding the management of these patients in recent years and this book presents extensive data on the techniques needed to maximize outcomes.
Microvascular Mechanics Springer Science & Business Media
This presentation describes various aspects of the regulation of tissue oxygenation, including the roles of the circulatory system, respiratory system, and blood, the carrier of oxygen within these components of the cardiorespiratory system. The respiratory system takes oxygen from the atmosphere and transports it by diffusion from the air in the alveoli to the blood flowing through the pulmonary capillaries. The cardiovascular system then moves the oxygenated blood from the heart to the microcirculation of the various organs by convection, where oxygen is released from hemoglobin in the red blood cells and moves to the parenchymal cells of each tissue by diffusion. Oxygen that has diffused into cells is then utilized in the mitochondria to produce adenosine triphosphate (ATP), the energy currency of all cells. The mitochondria are able to produce ATP until the oxygen tension or PO2 on the cell surface falls to a critical level of about 4–5 mm Hg. Thus, in order to meet the energetic needs of cells, it is important to maintain a continuous supply of oxygen to the mitochondria at or above the critical PO2 . In order to accomplish this desired outcome, the cardiorespiratory system, including the blood, must be capable of regulation to ensure survival of all tissues under a wide range of circumstances. The purpose of this presentation is to provide basic information about the operation and regulation of the cardiovascular and respiratory systems, as well as the properties of the blood and parenchymal cells, so that a fundamental understanding of the regulation of tissue oxygenation is achieved.
Biomechanics Elsevier
Textbook of Arterial Stiffness and Pulsatile Hemodynamics in Health and Disease, Two Volume Set covers the principles, physiology, biologic pathways, clinical implications and therapeutics surrounding arterial stiffness and pulsatile hemodynamics, along with a thorough overview of the field. The book presents complex engineering concepts in a way that those in science and medicine can more easily understand. It includes detailed illustrations, animations and slideshows. Additionally, it presents advanced bioengineering concepts in boxes for readers who wants more in-depth biophysical knowledge. This is a must-have reference for students, researchers and clinicians interested in learning more about this field. Incorporates case studies and calculations/worked examples with mathematical principles explained in a conceptual manner without complicated formulas Features chapter contributions from leading international researchers and clinicians Covers principles, physiology, biologic pathways, clinical implications and therapeutics
Coronary Microvascular Dysfunction Springer Science & Business Media
This book provides a comprehensive overview of mechanical circulatory support of the failing heart in adults and children. The book uniquely combines engineering knowledge and the clinician’s perspective into a single resource, while also providing insights into current and future development of mechanical circulatory support technology, such as ventricular assist devices, the total artificial heart and catheter-based technologies for heart failure. Topics featured in this book include: The history of mechanical circulatory device development. Fundamentals of hemodynamics support. Clinical management of mechanical circulatory devices. Surgical implantation techniques. Current limitations of device therapies in advanced heart failure. Advanced and novel devices in the development pipeline. Opportunities for advancement in the field. Mechanical Support for Heart Failure: Current Solutions and New Technologies is a must-have resource for not only physicians, residents, fellows, and medical students in cardiology and cardiac surgery, but also clinical and basic researchers in biomedical engineering with an interest in mechanical circulatory support, heart failure, and new technological applications in medicine.
Research Awards Index Springer Science & Business Media
The microvasculature refers to the smallest blood vessels, arterial and venous, that nurture the tissues of each organ. Apart from transport, they also contribute to the systematic regulation of the body. In everyday terminology, the microcirculation is "where the action is." Microcirculation is directly involved in such disease states as Alzheimers, inflammation, tumor growth, diabetic retinopathy, and wound healing- plus cardiovascular fitness is directly related to the formation of new capillaries in large muscles. Microvascular Research is the first book devoted exclusively to this vital systemic component of the cardiovascular system and provides up to date mini-reviews of normal functions and clinical states. The contributing authors are senior scientists with international reputation in their given disciplines. This two-volume set is a broad, interdisciplinary work that encompasses basic research and clinical applications equally. * Broad coverage of both basic and clinical aspects of microvasculature research * Contains 167 chapters from over 300 international authors * Each chapter includes key figures and annotated references
Biology of the Arterial Wall Springer
Bioengineering is attracting many high quality students. This invaluable book has been written for beginning students of bioengineering, and is aimed at instilling a sense of engineering in them.Engineering is invention and designing things that do not exist in nature for the benefit of humanity. Invention can be taught by making inventive thinking a conscious part of our daily life. This is the approach taken by the authors of this book. Each author discusses an ongoing project, and gives a sample of a professional publication. Students are asked to work through a sequence of assignments and write a report. Almost everybody soon realizes that more scientific knowledge is needed, and a strong motivation for the study of science is generated. The teaching of inventive thinking is a new trend in engineering education. Bioengineering is a good field with which to begin this revolution in engineering education, because it is a youthful, developing interdisciplinary field.
Textbook of Arterial Stiffness and Pulsatile Hemodynamics in Health and Disease University of Adelaide Press
This book reviews all aspects of the diagnosis and management of heart disease in women, covering areas such as gender differences in metabolic syndrome, hypertension and atherogenesis. Gender differences in cardiovascular diseases are widespread, but while gender medicine takes into account the effects of sex and gender on the health of women and men, traditionally, women have been underrepresented in cardiovascular clinical trials, in management of different cardiac diseases and drug use. Gender Differences in the Pathogenesis and Management of Heart Disease deals with the gender-specific differences in cardiac physiology and diseases and brings into perspective the critical significance of gender in management of cardiovascular disease presentations and management. As such it is of enormous use to all clinical staff who manage women with cardiovascular disease.
A Mathematical Hemodynamic Model of the Microcirculation in Skeletal Muscle, Including Passive and Active Vessel Properties, Hematocrit, and Blood Rheology CRC Press
The microcirculation is highly responsive to, and a vital participant in, the inflammatory response. All segments of the microvasculature (arterioles, capillaries, and venules) exhibit characteristic phenotypic changes during inflammation that appear to be directed toward enhancing the delivery of

inflammatory cells to the injured/infected tissue, isolating the region from healthy tissue and the systemic circulation, and setting the stage for tissue repair and regeneration. The best characterized responses of the microcirculation to inflammation include impaired vasomotor function, reduced capillary perfusion, adhesion of leukocytes and platelets, activation of the coagulation cascade, and enhanced thrombosis, increased vascular permeability, and an increase in the rate of proliferation of blood and lymphatic vessels. A variety of cells that normally circulate in blood (leukocytes, platelets) or reside within the vessel wall (endothelial cells, pericytes) or in the perivascular space (mast cells, macrophages) are activated in response to inflammation. The activation products and chemical mediators released from these cells act through different well-characterized signaling pathways to induce the phenotypic changes in microvessel function that accompany inflammation. Drugs that target a specific microvascular response to inflammation, such as leukocyte-endothelial cell adhesion or angiogenesis, have shown promise in both the preclinical and clinical studies of inflammatory disease. Future research efforts in this area will likely identify new avenues for therapeutic intervention in inflammation.

Current Catalog Biota Publishing

This reference is a volume in the Handbook of Physiology, co-published with The American Physiological Society. Growth in knowledge about the microcirculation has been explosive with the field becoming fragmented into numerous subdisciplines and subspecialties. This volume pulls all of the critical information into one volume. Meticulously edited and reviewed. Benefit: Provides investigators a unique tool to explore the significance of their findings in the context of other aspects of the microcirculation. In this way, the updated edition has a direct role in helping to develop new pathways of research and scholarship Highlights the explosive growth in knowledge about the microcirculation including the biology of nitric oxide synthase (NOS), endothelial cell signaling, angiogenesis, cell adhesion molecules, lymphocyte trafficking, ion channels and receptors, and propagated vasomotor responses. Benefit: Microcirculatory biology has become fragmented into numerous sub-disciplines and subspecialties, and these reference reintegrates the information in one volume

Microvascular Networks Springer Science & Business Media

In the past two decades a number of studies have shown that abnormalities in the function and structure of coronary microcirculation can be detected in several cardiovascular diseases. On the basis of the clinical setting in which it occurs, coronary microvascular dysfunction (CMD) can be classified into four types: CMD in the absence of any other cardiac disease; CMD in myocardial diseases; CMD in obstructive epicardial coronary artery disease; and iatrogenic CMD. In some instances CMD represents an epiphenomenon, whereas in others it represents an important marker of risk or may contribute to the pathogenesis of myocardial ischemia, thus becoming a possible therapeutic target. This book provides an update on coronary physiology and a systematic assessment of microvascular abnormalities in cardiovascular diseases, in the hope that it will assist clinicians in prevention, detection and management of CMD in their everyday activity.

Regulation of Tissue Oxygenation, Second Edition Elsevier Health Sciences

Resistance arteries have been recognized for some time as key factors in the regulation of vascular flow resistance, where they determine the regional and local distribution of blood and arterial pressure. Chapters provide an overview of the physiological, biochemical, and electrophysiological characteristics of these vessels, as well as a critical evaluation of the methodologies for studying small arteries and an examination of the membrane and neural mechanisms involved in the control of vascular tone.

Highlights on Hemodynamics Springer Nature

The diagnostics and therapies of hemodynamics are elucidated in this profound book. Hemodynamics is the study of the mechanical and physiological properties controlling blood pressure and blood flow through the body. Various factors affecting hemodynamics are intrinsically complicated and expansive. Along with systemic hemodynamic alterations, microvascular changes are also frequently witnessed in critically ill patients. This book presents an updated research on hemodynamics with contributions by experts from various backgrounds.

Mechanical Support for Heart Failure World Scientific

New updated edition first published with Cambridge University Press. This new edition includes 29 chapters on topics as diverse as pathophysiology of atherosclerosis, vascular haemodynamics, haemostasis, thrombophilia and post-amputation pain syndromes.

Perioperative Hemodynamic Monitoring and Goal Directed Therapy Springer

Hypertension is a condition which affects millions of peopleworldwide and its treatment greatly reduces the risk of strokes andheart attacks. This fully revised and updated edition of the ABCof Hypertension is an established guide providing all thenon-specialist needs to know about the measurement of bloodpressure and the investigation and management of hypertensivepatients. This new edition provides comprehensively updated andrevised information on how and whom to treat. The ABC of Hypertension will prove invaluable to generalpractitioners who may be screening large numbers of patients forhypertension, as well as nurse practitioners, midwives and otherhealthcare professionals.

Capillary Fluid Exchange BoD – Books on Demand

In the era of functional hemodynamic monitoring and computational modeling, the present book published by IntechOpen® highlights some interesting aspects in the field. Divided into two sections, it presents hemodynamic topics of special interest. Thus, the authors offer the readers not only a "vigorous" review of the current literature but also a research direction for further advancement.