

PTCA

An Investigational Tool and a Non-operative Treatment of Acute Ischemia

edited by

P.W. Serruys, R. Simon and K.J. Beatt



Ptca An Investigational Tool And A Non Operative Treatment Of Acute Ischemia

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Ptca An Investigational Tool And A Non Operative Treatment Of Acute Ischemia:

PTCA An Investigational Tool and a Non-Operative Treatment of Acute Ischemia P.W. Serruys, Rüdiger Simon, Kevin J. Beatt, 2012-12-06 Obstruction of coronary blood flow and the resultant consequences are the center stage pathophysiologic events in cardiology today The speculations of Jenner Burns Heberdin McKenzie Prinzmetal and many others had until now been left to observations of isolated tissue and intact animal experimentation Only with the advent of Gruentzig's technique which allowed us to work safely inside the coronary arteries are we able to observe the effects of coronary occlusion in living conscious man PTCA provides not only a therapeutic modality for non operatively opening coronary obstructions but has also provided the best model for studying the effects of acute ischemia on the heart The procedure also lead the way to all other interventional cardiology developments including modern thrombolysis in the setting of acute myocardial infarction In his previous works Serruys has examined how PTCA can serve as a model for studying acute ischemia In this book he and his co authors discuss the effects of balloon induced ischemia on the electrocardiographic changes coronary blood flow dynamics cardiac muscle metabolism and left ventricular function as well as measures to counter these effects and provide for reperfusion in unstable angina and acute myocardial infarction Technology has expanded the eyes of the observer of these events The authors use many techniques including ECG recording from surface endocardium and intracoronary electrodes angiographic assessment of coronary flow pattern using digital techniques as well as doppler flow measurements biochemical assessment of metabolic products stimulated by ischemia and digital angiographic and echo doppler assessment of left ventricular function

Drug Evaluation in Angina Pectoris Gianluigi Ardissino, Lionel H. Opie, Stefano Savonitto, 2012-12-06 Although there are many books on angina few are devoted to the important problem of how to evaluate drug efficacy in angina pectoris Drug Evaluation in Angina Pectoris has two fundamental aims the first is to review the methodological aspects of drug evaluation in stable and unstable angina pectoris the second is to provide a logical and methodological background for future studies aimed at assessing the ability of medical treatment to improve prognosis Part I updates the pathophysiology clinical presentation and prognosis of angina pectoris Part II aims to put in numbers the symptoms and signs of myocardial ischemia starting from a revision of the currently used parameters It is extremely important to quantify the variability of the disease for the correct design of clinical trial a subject dealt with in Part III which also discusses some clinico pharmacological aspects of therapy Part IV is a critical review of the drugs currently used for the treatment of stable and unstable angina and particularly considers some important unresolved issues concerning their use The current FDA and EC guidelines for the evaluation of antianginal drugs are briefly discussed in Part V giving clinical investigators insight into how antianginal drugs are evaluated by regulatory agencies and what is considered as proof of a valid efficacy tolerability ratio Drug Evaluation in Angina Pectoris will assist discerning cardiologists pharmacologists and advanced students of cardiology as well as innovative pharmaceutical companies all of whom need to

understand what angina is how to evaluate treatment and how to judge the agents used in its treatment

Ischemia-reperfusion in cardiac surgery Hans Michael Piper, C.J. Preusse, 2012-12-06 In open heart surgery protection of the myocardium against injury by ischemia reperfusion is an issue of utmost clinical interest The knowledge on the causal mechanisms of myocardial injury in ischemia reperfusion has greatly progressed in recent years both to clinical and experimental research This book provides a critical and comprehensive overview on the current discussion of myocardial protection in cardiac experimental research and surgery Leading groups from Europe the U S and Japan have contributed reviews of their special fields On the basic science side major topics discussed are the mechanisms of stunning and lethal reperfusion injury the role of the endothelium and leukocyte activation in postischemic myocardial dysfunction and the differences between the adult and neonatal myocardium On the clinical side the major concepts and procedures for cardioplegic myocardial protection their rationales application and respective merits are discussed In a third part of the book possible approaches for the monitoring of myocardial injury during ischemia and reperfusion are evaluated with particular attention to their intraoperative use This book brings together the scientific discussions on ischemia reperfusion in experimental cardiology and cardiac surgery a task needed for a long time It is of general interest for clinicians as well as research workers and students in the cardiac field

Coronary Bypass Surgery in the Elderly P.J. Walter, 2012-12-06 Coronary artery bypass surgery in the elderly Too often or too seldom It is a testimony to scientific advances that raising a simple inquiry today such as whether coronary artery bypass surgery is done too often or too seldom in elderly patients requires an exploration of what views one might hold on several medical as well as non medical issues Unlike earlier years when doctors were clinically free to decide what should be done with a patient health has become an expensive human right decisions about which also involve the patient the epidemiologist the health policy administrator politicians the exchequer and the philosopher In its broadest definition health has come to mean the core of well being and therefore the goal of any socio economic system Until only a decade ago medical opinion regarding how often coronary artery bypass surgery CABG was indicated or useful was unclear Because of multi organ senescence the elderly were expected to have a higher rate operative morbidity and mortality and having crossed an advanced life span might not live very long after the operation Decision making on medical grounds first depends on knowing if a patient can survive an operation compared to how long they would survive without it i e

Lipid-Lowering Therapy and Progression of Coronary Atherosclerosis A.V. Bruschke, Johan H. C. Reiber, K.J. Lie, Hein J.J. Wellens, 2012-12-06 A unique overview of all major angiographic lipid intervention trials presented by their principal investigators Basic mechanisms and methodological aspects including biochemical as well as angiographic aspects are discussed by experts in these fields A careful comparison of all available data permits an analysis to be made of what may currently be considered proved which aspects merit further investigation and which hypotheses should be rejected Audience Clinicians involved in the practice of lipid lowering and investigators involved

in lipid lowering clinical trials Scientists involved in other areas of lipid research and investigators conducting coronary angiographic trials designed to study the influence of different interventions will find a wealth of information and practical guidelines in this book

Quality of Life after Open Heart Surgery P.J. Walter, 2012-12-06 primary goal of all forms of therapy is not just prolonging life but improving the quality of life has forced analysis of what constitutes quality of life a concept whose structure pervades all walks of life and eludes definition Global well being happiness morale vitality fullness of social life and satisfaction must be integrated and assessed for the effects of the disease and the therapy in the context of specific personality traits attitudes to life family situation and socio economic and political freedom A growing interest in research on this subject has led to a clearer understanding of the components which come to determine quality of a patient's life and how they can be measured in a reproducible manner so that valid comparisons can be made Keeping these recommendations of analysing quality of life within the context of patients who have undergone open heart surgery it seemed appropriate to me to separate the influence of various forms of open heart surgery into five aspects of life which can comprehensively reflect the quality of life outcome of the operation These five components are 1 Physiological state which summarises the traditionally reported incidence of operative mortality and morbidity objectively and subjectively measured physical capacity and the residual symptoms treatment and long term survival 2 Intellectual functioning relates to the psychoneurological deficit in memory reasoning or judgement because of cerebral microembolism and hypoperfusion during cardiopulmonary bypass

Myocardial viability A.S. Iskandrian, Ernst E. van der Wall, 2012-12-06 In the past few years it has become clear that left ventricular dysfunction even of severe degree may be reversible after coronary revascularization in some patients As a result myocardial viability has captured the imagination of researchers and clinicians seeking to unravel the cellular and subcellular mechanisms and define appropriate diagnostic modalities These diagnostic modalities include cardiac catheterization positron emission tomography magnetic resonance imaging two dimensional echocardiography and single photon imaging This book for the first time brings together a diverse array of information in a comprehensive and concise fashion using a template of ten chapters written by experts in the field It will be required reading for cardiologists radiologists nuclear medicine specialists cardiac surgeons anesthesiologists internists and basic researchers and their trainees who are involved in the management of patients with coronary artery disease in whom myocardial viability is a clinically relevant issue

Animal models in cardiovascular research D.R. Gross, 2013-04-17 Interest in the humane and scientifically justifiable use of research animals has intensified since the publication of the first edition of this textbook This completely revised and updated text provides information essential to any researcher interested in using animal models for cardiovascular research or any research which requires normal cardiovascular function The format and presentation have been changed to make the text more easy to read and use An introductory chapter offers general principles of animal selection pre and post operative care preanesthesia chemical restraint analgesia and the recognition of pain The number of

references cited has been almost doubled over the previous text and the chapter tabulating normal cardiovascular parameters from intact awake animals of those species commonly used in research has been greatly expanded Other chapters providing comprehensive data on the cardiovascular effects of opioids tranquilizers anesthetic agents and other drugs commonly used in cardiovascular research have been expanded with special emphasis on species variability to drug effects The chapters on both naturally occurring and iatrogenic models of cardiovascular disease have also been expanded and updated

Nuclear Cardiology in Everyday Practice J. Candell-Riera, D. Ortega-Alcalde, 2012-12-06 The most salient feature of the information provided by nuclear medicine is its information from an analytical and pathophysiological and functional characteristics statistical point of view This approach is termed For adequate experimental or clinical required for correct decision making interpretation such information should This book is therefore the result of necessarily be interpreted alongside the accumulated experience in nuclear cardiology views of the clinical cardiologist who is with the invaluable cooperation of medical able to apply it to the individual patient statisticians It is directed to physicians This approach which is routine in every with an interest in nuclear cardiology to day clinical practice reaches its plenitude nuclear medicine specialists wishing to when the whole process is completed and learn the uses and limitations of these an intimate cooperation is established procedures in everyday clinical cardiology between the nuclear medicine specialist and to cardiologists who feel the need to and the clinical cardiologist In such understand the rationale and methodology instances each one of these professionals of the studies which benefit their patients understands the needs limits and possibilities We understand that the ultimate reason bilities of the other for any scientific book is the transmission The present book is the fruit of such of knowledge and we are fully conscious cooperation In our hospital an efficient of the enthusiasm of the authors of the nuclear cardiology team has been made up present text to achieve that aim

What's New in Cardiovascular Imaging? Johan H. C. Reiber, Ernst E. van der Wall, 2012-12-06 What's New in Cardiovascular Imaging is a bibliographical image of a Symposium held June 22-24 1998 in Leiden the Netherlands At this Symposium all the major advances in cardiovascular imaging in all the cardiovascular imaging modalities X-ray intravascular ultrasound magnetic resonance scintigraphy and CT were addressed by the leading authorities in this field Based on the presentations of the invited Faculty this book consists of a compilation of manuscripts related to most of the topics discussed at this particular meeting We express our gratitude to all authors and coauthors for having made great efforts in preparing their superb up to date chapters under a great time pressure so that this book was available at the time of the Symposium The authors are all excellent investigators in one or more fields of cardiovascular imaging and they have stimulated progress in cardiovascular imaging with the aim to improve patient care and clinical research This book consists of a total of 32 chapters subdivided into seven Parts Each part describes a particular field in cardiovascular imaging These Parts are Coronary quantitation by QCA and intracoronary ultrasound QCU angiographic trials progress in intravascular ultrasound magnetic resonance MR coronary

and vascular imaging nuclear cardiovascular imaging echocardiography and cine and spiral CT coronary imaging In general each Part begins with a chapter that provides a broad overview of the advances in the field described in that particular Part as well as a view towards the future *Progress in quantitative coronary arteriography* Johan H. C. Reiber,P.W.

Serruys,2012-12-06 This is the fifth volume in this series on quantitative coronary arteriography QCA published over the last nine years Research and applications in this exciting field are covered in a total of 26 chapters by world renowned experts This book is subdivided into a total of 6 parts each emphasizing the latest progress in these respective fields In Part One a comprehensive overview is given of the current knowledge and research in endothelial function which is of eminent importance for the further understanding of the pathophysiology of coronary artery disease in patients Fortunately the use of QCA tools is not limited anymore to leading research institutes over the last several years these tools have been installed in many cardiology centers world wide To understand the current possibilities limitations and future expectations of QCA several relevant topics are presented in Part Two First of all the questions about why and how QCA systems should be validated both at the development site and at the application sites and whether data from different vendors and core laboratories can be pooled are discussed As the X ray cardiovascular world steadily moves into the digital imaging era differences and similarities between the conventional cinefilm and the modern digital approaches are presented Currently the widespread use of digital imaging is still hindered by the lack of proper archival and exchange media Requirements and possible solutions for this problem are handled in this section as well **The Pacemaker Clinic of the 90's** N.M. van

Hemel,F.H. Wittkamp,Hugo Ector,2012-12-06 Since the first pacemaker implantation in October 1958 by Senning and Elmqvist in Sweden cardiac pacing for bradycardia has become a well established therapy The impressive growth of clinical experience and the rapid development of pacemaker devices have greatly contributed to this situation The electrical therapy appears to be so easy that insertion of the lead and its connection to the pacemaker generator requires little effort skill or insight However after implantation a patient's condition seldom remains stable which requires a flexible pacing program to cover all new cardiac events and broad insight from clinician and technical colleagues The Pacemaker Clinic of the 90's teaches anatomical and electrophysiological aspects of pacing supports the prevention of complications and points to new developments in the field Apart from classical indications for cardiac pacing the book discusses the validity of the latest indications supporting the cardiologist and the associated professional in selecting the appropriate pacing mode and pacemaker follow up in individual patients The Pacemaker Clinic of the 90's will be a helpful companion for years to come

Cardiac Positron Emission Tomography Ernst E. van der Wall,P.K. Blanksma,M.G. Niemeyer,A.M. Paans,2012-12-06 Myocardial viability has become one of the most important issues in clinical cardiology In particular absence or presence of viability may be decisive in patient management and the decision to perform angioplasty PTCA or bypass surgery CABG is frequently based on the accurate assessment of viability Although echocardiography and conventional nuclear medicine

techniques may provide valuable information on viability positron emission tomography PET is currently considered to be the gold standard for the assessment of myocardial viability The simultaneous evaluation of myocardial metabolism and perfusion allows precise delineation and accurate quantification of residual myocardial viability in affected regions In addition accurate quantification of myocardial perfusion alone may provide insight into the basic mechanisms of syndrome X and may assist in the appropriate clarification of this clinically complicated but frequently occurring phenomenon Besides that cardiac PET may deepen our insight into metabolism and perfusion of cardiac muscle disease particularly in hypertrophic cardiomyopathy Furthermore receptor imaging studies with PET will become important as the study of cardiac neurohumoral regulation in heart failure has gained in interest Cardiac Positron Emission Tomography Viability Perfusion Receptors and Cardiomyopathy describes the most recent developments in cardiac PET as these are related to myocardial viability and myocardial perfusion studies of syndrome X The value of PET for receptor imaging and cardiac muscle disease is also discussed For cardiologists nuclear medicine physicians radiochemists physiologists technicians and basic researchers interested in understanding the most recent achievements in cardiovascular PET

Cardiovascular Imaging Johan H. C. Reiber, Ernst E. van der Wall, 2012-12-06 In the past coronary arteriography was the only modality available to provide high quality images of the coronary anatomy Quantitative coronary arteriography QCA was developed implemented validated and extensively applied to obtain accurate and reproducible data about coronary morphology and the functional significance of coronary obstructions Over the last few years extensive basic technological research supported by clinical investigations has created competing modalities to visualize coronary morphology and the associated perfusion of the myocardial muscle Currently the following modalities are available X ray coronary arteriography intracoronary ultrasound contrast and stress echocardiography angioscopy nuclear cardiology magnetic resonance imaging and cine and spiral CT imaging For all these imaging modalities the application of dedicated quantitative analytical software packages enables the evaluation of the imaging studies in a more accurate reliable and reproducible manner These extensions and achievements have resulted in improved diagnostics and subsequently in improved patient care Particularly in patients with ischaemic heart disease major progress has been made to detect coronary artery disease in an early phase of the disease process to follow the atherosclerotic changes in the coronary arteries to establish the functional and metabolic consequences of the luminal obstructions and accurately to assess the results of interventional therapy Aside from all these high tech developments in cardiac imaging techniques the transition from the analogue to the digital world has been going on for some time now For the future it has been predicted that the CD R will be the exchange medium for cardiac images and DICOM 3 the standard file format This has been a major achievement in the field of standardization activities Since these developments will have a major impact on the way images will be stored reviewed and exchanged in the near future an important part of this book has been dedicated to DICOM and the filmless catheterization laboratory Cardiovascular Imaging will assist cardiologists radiologists nuclear medicine physicians image

processing specialists physicists basic scientists and fellows in training for these specialties to understand the most recent achievements in cardiac imaging techniques and their impact on cardiovascular medicine Cardiovascular Imaging by Ultrasound Peter Hanrath, R. Uebis, W. Krebs, 2012-12-06 An international meeting of experts on Cardiovascular Imaging by Ultrasound was held in Aachen from 26-27 April 1991. It provided new and interesting insights into what has already been achieved in ultrasound based cardiovascular diagnosis and therapy and what will be introduced in clinical practice in the near future. Since the introduction of ultrasound in clinical practice in 1984, there has been no other physical principle that has added and will continue to add so much to clinical diagnosis and therapy. Echocardiography, once established as a non-invasive diagnostic tool, is increasingly becoming an invasive technique for cardiovascular imaging. This book contains the edited contributions from 38 scientists and engineers from all over the world who presented the most up-to-date findings on 2-dimensional echocardiography, different Doppler modalities, contrast and stress echocardiography, and the different modalities of transesophageal echocardiography, including mono bi and multiplane TEE, as well as pulsed and CW Doppler application via TEE. Exciting and promising developments are discussed in the field of intravascular ultrasound, tissue characterization, ultrasound ablation, ultrasound based 3-dimensional reconstruction of the heart, and high frequency Doppler analysis. *Angiology in Practice* A-M. Salmasi, A. Strano, 2012-12-06 Arterial and venous diseases are major causes of morbidity and mortality in most of the world, especially in the western hemisphere. Not only of interest to angiologists, these illnesses are also of concern to most physicians in various fields ranging from cardiology, general medicine, and cardiovascular surgery to physiology, pathology, and clinical pharmacology. Specialists in diabetes, hypertension, and epidemiology find these illnesses as challenging in their own fields of interest due to the gross interrelation of these diseases with their specialties. This book of 35 chapters contains an up-to-date discussion of various arterial and venous illnesses, presenting major clinical applications ranging from basic pathology, haemodynamics, and haemorheology to clinical features and management. Special attention has also been paid to epidemiology and prevention, discussing all the issues concerned. A special section on vascular emergency has also been included, thereby extending its usefulness to physicians and surgeons working in accident and emergency units. **Excitation-Contraction Coupling and Cardiac Contractile Force** Donald Bers, 2013-04-17 The main aim of this monograph is to provide an overview of calcium regulation in cardiac muscle cells, particularly with respect to excitation-contraction coupling and the control of cardiac contractile force. It is my hope that this book will be useful to students of the cardiovascular system and muscle at all different levels and in different disciplines such as physiology, biochemistry, pharmacology, and pathophysiology. I also hope that it will find use for those studying developmental, comparative, and disease processes, as well as more integrative phenomena. I kept several goals in mind in writing this monograph. First, it should be easily readable. Second, I chose to include numerous illustrations and tables to help integrate results from numerous investigators in practical formats and also present key figures from important papers. Thus

this monograph may serve as a resource of information for people working in the areas described herein Third the presentation is a very personal one and I have necessarily drawn extensively on my personal experience in this field over the past 15 years This I think helps maintain a certain continuity of thought from chapter to chapter Fourth I have made serious attempts to make each chapter up to date despite the breadth of topics covered I have also tried to be equitable in choosing references while not intending to be comprehensive or exhaustive Neither of these aims can be perfectly matched and I apologize to the many investigators whose papers I have not cited but should have

Molecular Physiology and Pharmacology of Cardiac Ion Channels and Transporters M. Morad,S. Ebashi,W. Trautwein,Yoshihisa Kurachi,2012-12-06 Knowledge of cardiac ion channels and transporters has advanced remarkably in the last two decades with the development of patch clamp and molecular biological techniques This textbook offers a comprehensive overview of structures and functions of ion channels and transporters in the heart Readers are first introduced to the molecular biology and electrophysiology of all the important ion channels After discussing their developmental changes the pharmacology and pathophysiology of clinically relevant ion channels are reviewed Molecular aspects of the cardiac excitation contraction coupling and intracellular Ca²⁺ regulation by ion transporters are also described The book will be useful to electrophysiologists cardiac physiologists and pharmacologists and molecular biologists interested in ion channels at all levels For research specialists the book will provide a perspective of the field The book can be used as a reference source for working scientists in the fields of ion channels biophysics cardiac electrophysiology and pharmacology It is aimed at graduate and medical students designed for use as a textbook for graduate and medical courses

What's New in Cardiac Imaging? Ernst E. van der Wall,H. Sochor,A. Righetti,M.G. Niemeyer,2012-12-06 Since the introduction of myocardial perfusion imaging and radionuclide angiography in the mid seventies cardiovascular nuclear medicine has undergone an explosive growth The use of nuclear cardiology techniques has become one of the cornerstones of the noninvasive assessment of coronary artery disease In the past 15 years major steps have been made from visual analysis to quantitative analysis from planar imaging to tomographic imaging from detection of disease to prognosis and from separate evaluations of perfusion metabolism and function to an integrated assessment of myocardial viability In recent years many more advances have been made in cardiovascular nuclear imaging such as the development of new imaging agents reevaluation of existing procedures and new clinical applications This book describes the most recent developments in nuclear cardiology and also addresses new contrast agents in MRI What s New in Cardiac Imaging will assist the clinical cardiologist the cardiology fellow the nuclear medicine physician and the radiologist in understanding the most recent achievements in clinical cardiovascular nuclear imaging

Drugs Looking for Diseases R. Vos,2012-12-06 We all know how much time effort and money it takes to develop a new drug Hundreds of chemical compounds have to be synthesized and thousands of different activities in biology physiology pharmacology clinical investigation management and marketing have to be initiated and

coordinated Each new drug starts a voyage of discovery through an unmapped terrain which is shrouded in mist and beset by pitfalls as Dr Rein Vos puts it in his absorbing inside story of the development of the beta adrenoceptor blocking agents and the calcium antagonists Indeed we know for example how long it took before the theory of Ahlquist of the alpha and beta adrenergic receptors was widely accepted Similarly it suffices to memorize shortly the difficulty of expanding the new concept of calcium antagonism through the national German boundaries into the world This shows how laborious and complex pharmaceutical progress is and we all will benefit from a deeper understanding of the process of innovative drug research

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