

Use of Pharmaceuticals in Noninvasive Cardiovascular Diagnosis

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A number of pharmaceuticals are employed as diagnostic agents for cardiovascular diseases. Four groups of agents are reviewed here: 1) vasoactive substances employed as adjuncts to physical maneuvers in diagnosis of structural heart disease; 2) vasodilators used to produce heterogeneity of coronary flow; 3) sympathomimetic agents simulating the effects of exercise on the heart for the purpose of detection of coronary artery stenosis; and 4) ultrasonic contrast agents used to enhance myocardial imaging for the assessment of segmental wall motion. In the first group are amyl nitrate, a vasodilator, and methoxamine and phenylephrine, both vasopressors. The vasodilators of the second group are dipyridamole and adenosine. When combined with scintigraphic perfusion imaging or with echocardiographic assessment of segmental wall motion, these agents can detect single- or multiple-vessel coronary artery disease with sensitivity and specificity comparable to submaximal exercise. They are especially useful for preoperative risk assessment before noncardiac surgery. The sympathomimetic agents of the third group, dobutamine and arbutamine, increase myocardial contractility and heart rate, and dilate the peripheral vasculature. As with the vasodilators, when combined with nuclear or echocardiographic techniques they are equivalent to exercise in detection of coronary disease. They are especially useful in patients with bronchospastic disease and for assessment of myocardial viability. Agents from groups 2 and 3 have acceptable side-effect and safety profiles. The last group reviewed includes echocardiographic contrast agents that, in this investigative setting, are employed to enhance detection of segmental wall motion when used with agents from groups 2 and 3.

Pharmacologic agents have been used in cardiac diagnosis for years to bring out abnormalities that would not otherwise be detected. Nitrates, pressors, ergonovine, atropine, and more recently dipyridamole, adenosine, dobutamine, and arbutamine have been utilized during diagnostic procedures including physical examination, cardiac catheterization, and stress testing. In this review, we emphasize those drugs used for detecting coronary artery disease and myocardial viability during electrocardiographic (ECG) stress testing, radionuclide examinations, and echocardiographic study.

PROVOCATIVE TESTING IN CARDIAC AUSCULTATION

Because of its wide availability and accuracy, echocardiography has largely supplanted the need to augment aus-

cultation of the heart by administration of the vasodilator amyl nitrate or the vasoconstrictors phenylephrine and methoxamine.¹⁻³

Amyl Nitrate

Administered by inhalation, amyl nitrate initially induces vasodilatation, a decrease in left ventricular size, and relative hypotension. These effects are followed by reflex tachycardia and an increase in cardiac output. The increased cardiac output augments the murmurs of valvular aortic stenosis, pulmonic stenosis, hypertrophic obstructive cardiomyopathy, and tricuspid regurgitation. Relative hypotension reduces the intensity of murmurs of mitral and aortic regurgitation, ventricular septal defect, and patent ductus arteriosus. The click and murmur of mitral valve prolapse occurs earlier because of reduction in mitral annular diameter, but like all mitral regurgitation murmurs, it is reduced in intensity.

Methoxamine and Phenylephrine

These agents are administered intravenously, with phenylephrine the preferred agent owing to its shorter duration of action. They are vasoconstrictors and affect murmurs by increasing arterial pressure, increasing heart size, and decreasing cardiac output. Increasing arterial pressure inten-

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Noninvasive Approaches To Cardiovascular Diagnosis

**Majid Maleki,Azin Alizadehasl,Majid
Haghjoo**



Noninvasive Approaches To Cardiovascular Diagnosis:

Noninvasive Approaches to Cardiovascular Diagnosis Alfred F. Parisi, Donald E. Tow, 1979 NonInvasive Cardiovascular Imaging: A Multimodality Approach Mario J. Garcia, 2012-03-28 This textbook covers the fundamental principles of cardiovascular imaging modalities and their applications for the diagnosis of cardiovascular diseases The main focus is on the comprehensive diagnosis of clinical conditions disease entities through the most effective cardiovascular imaging test or combination The authors discuss the clinical utility and relative value of each test to address specific clinical questions based on evidence and expert opinion Each chapter presents information in the following format overview discussion of pathophysiology differential diagnosis diagnostic evaluation prognosis therapeutic guidance with illustration of treatment pathway A companion Website will offer the full text ten multiple choice questions for each chapter still and cine images and imaging clips *Current Catalog* National Library of Medicine (U.S.), 1983 First multi year cumulation covers six years 1965 70 *Source Book of Educational Materials for Nuclear Medicine* , 1981 **The Practice of M-Mode and Two-Dimensional Echocardiography** J.R. Roelandt, 2012-12-06 The extension of conventional M mode to two dimensional echocardiography has been a major advance for the evaluation and management of cardiac disease Their combined use is optimal for a comprehensive analysis of anatomy and structure function and thus best serving the patient This book critically examines the validity of the applications of these ultra sound techniques in common cardiac disorders In addition to the clinical value of contrast and Doppler echocardiography several chapters are devoted to problems related to quantitation of both M mode and two dimensional echocardiography This volume is specifically aimed at the practicing cardiologist and provides an in depth appreciation of most recent echocardiographic advances J ROELANDT LIST OF CONTRIBUTORS Anliker M MD Department of Cardiology University Hospital Zurich R imistrasse 100 8091 Zurich SWITZERLAND Carroll J D MD Department of Cardiology University Hospital of ZUrich R imistrasse 100 8091 Zurich SWITZERLAND Cate F J ten MD Harbour Hospital Haringvliet 2 3011 TD Rotterdam THE NETHERLANDS Cikes I MD Institute of Cardiovascular Disease School of Medicine University of Zagreb Kispaticeva 12 41000 Zagreb YUGOSLAVIA Domburg R T van PhD Thoraxcenter Academic Hospital Dijkzigt and Erasmus University P O Box 1738 3000 DR Rotterdam THE NETHERLANDS Ernst A MD Institute of Cardiovascular Disease School of Medicine University of Zagreb Kispaticeva 12 41000 Zagreb YUGOSLAVIA Hanrath P MD Department of Cardiology University Hospital Hamburg Eppendorf Mar tinistrasse 52 2000 Hamburg 20 BRD Hess D M MD Department of Cardiology University Hospital Zurich R imistrasse 100 8091 ZUrich SWITZERLAND

Comparative Approaches to Medical Reasoning Maurice E. Cohen, Donna L. Hudson, 1995 This book focuses on approaches to computer assisted medical decision making A unique feature of the book is that a specific problem in medical decision making has been selected from the literature with each contributed chapter presenting a different approach to the solution of the same problem Theoretical foundations for each approach are provided followed by practical application

Techniques include knowledge based reasoning neural network models hybrid systems reasoning with uncertainty and fuzzy logic among others The goal is to supply the reader with a variety of theoretical techniques whose practical implementation can be clearly understood through the example Using a single concrete example to illustrate different theoretical approaches allows various techniques to be easily contrasted and permits the reader to determine which aspects are pertinent to specific types of applications Although the methods are illustrated in a medical problem they have wide applicability in numerous areas of decision making **Foundations of Noninvasive Cardiovascular Diagnostic Processes** Dhanjoo N. Ghista,1979

Manual of Cardiac Diagnosis Kanu Chatterjee,Mark Anderson,Donald Heistad,Richard E Kerber,2014-06-30 This manual is a comprehensive guide to cardiac diagnostic techniques for clinicians Beginning with the basics the book highlights the importance of history taking and physical examination The following sections provide in depth coverage of both new and more traditional diagnostic imaging techniques including electro and echocardiogram MRI intravascular ultrasound nuclear computerised tomography and molecular imaging Invasive diagnostic modalities and their clinical application are also discussed Written by internationally recognised specialists from the University of Iowa this practical guide includes more than 700 images and illustrations Key points Comprehensive guide to cardiac diagnosis for clinicians Covers new and traditional imaging techniques for numerous cardiac disorders Internationally recognised author team More than 700 images and illustrations Pollock's Textbook of Cardiovascular Disease and Rehabilitation J. Larry Durstine,2008 Dedicated to Michael Pollack 1936 1998 a preeminent scientist in the field and intended as an up to date reference to both scientific and clinical topics this volume comprises 34 contributed chapters combining the expertise of physicians with that of specialists in exercise and behavioral science Early chapters discuss the history of cardiovascular rehabilitation the epidemiology of cardiovascular disease exercise as medicine from antiquity to the present risk factor intervention and clinical practice guidelines Following are chapters on pathophysiology diagnosis and medical management lifestyle management common comorbidities and complications and rehabilitation **Diagnosis and Therapy of Coronary Artery Disease** Peter F.

Cohn,2012-12-06 Because the increasing complexities of diagnosis testing and training for example are of necessity and treating coronary artery disease are at issue discussed in more than one chapter with times overwhelming for many physicians the appropriate cross referencing Special attention purpose of this book is to bring together in one has been directed at making the references as comprehensive yet reasonably concise text as current as possible Since the aim of the book is to do more than just update the concepts the scholarly but clinically oriented analysis of the reader is also informed of the pertinent controversial major aspects of coronary artery disease The book is mainly intended for internists versed in the field The word controversy is used in its most liberal form so as to include areas of and clinical cardiologists as well as for those in training for these respective disciplines but it disagreement or of uncertainty as well as should also be of interest to primary care physicians changes in traditional views Each of the clinicians responsible for the management of patients has been asked

to identify specifically patients with coronary artery disease Each of the the most important of the controversies in his contributors whether cardiologist radiologist particular area of interest and to address himself or surgeon has been selected for his special to these issues in the course of the chapter

Cumulated Index Medicus ,1974

Learning Diagnostic Imaging Ramón Ribes, Antonio Luna, Pablo R. Ros, 2008-11-06 This book is an introduction to diagnostic radiology including nuclear medicine Written in a user friendly format it takes into account that radiology is divided into many subspecialties that constitute a universe of their own The book is subdivided into ten sections such as musculoskeletal thoracic gastrointestinal cardiovascular and breast imaging Each chapter is presented with an introduction of the subspecialty and ten case studies with illustrations and comments

Diagnostic Methods in the Cardiac Catheterization Laboratory Pedro A. Lemos, Paul Schoenhagen, Alexandra Lansky, 2009-12-18 The tools necessary for correctly identifying complex coronary lesions and plaques The data required to accurately diagnose rare disease progression and patterns With Diagnostic Methods in the Cardiac Catheterization Laboratory all of the essential diagnostic modalities you need in the lab are at your fingertips This new force in cardiology is

Cardiology E-Book Michael H. Crawford, John P. DiMarco, Walter J. Paulus, 2009-09-18 With your heavy case load you can't afford to waste time searching for answers Cardiology 3rd Edition by Drs Crawford DiMarco and Paulus offers you just the practical problem based guidance you need to quickly overcome any clinical challenge 8 color coded sections cover the 8 major clinical syndromes of cardiovascular disease each section a virtual mini textbook on its topic 40 new chapters keep you up to date with the latest advances in the field while more than 2 000 lavish high quality illustrations color photographs tables and ECGs capture clinical manifestations as they present in practice It's current actionable information that you can put to work immediately for your patients Offers a problem based approach that integrates basic science diagnostic investigations and therapeutic management in one place for each cardiovascular disease so you can quickly find all of the actionable knowledge you need without flipping from one section to another Features introductory bulleted highlights in each chapter that present the most pertinent information at a glance Presents abundant algorithms to expedite clinical decision making Includes more than 2 000 lavish high quality illustrations color photographs tables and ECGs that capture clinical manifestations as they present in practice and promote readability and retention Includes 40 new chapters including Inherited Arrhythmia Syndromes Implantable Cardioverter Defibrillators and Cardiac Resynchronization Therapy in CHD Management of the Cyanotic Patient with CHD Special Problems for the Cardiology Consultant Dealing with Bariatric Gastric Bypass and many more that equip you with all of the latest knowledge Presents Special Problem sections many new to this edition that provide practical advice on problems that can be difficult to treat

Cardiology Kanu Chatterjee, 2012-08-31 This two volume set presents recent advances in the knowledge and technology related to the field of cardiology Beginning with a basic introduction the text continues with a step by step approach through the subject covering topics such as cardiovascular pharmacology electrophysiology coronary heart diseases myocardial and

pericardial disease and more With contributions from leading international experts and over 1500 colour photographs each chapter contains additional comments and guidelines from reputed international bodies The book is accompanied by a DVD ROM containing high quality video footage of echocardiography

Practical Cardiology Majid Maleki,Azin Alizadehasl,Majid Haghjoo,2021-02-16 From basic clinical facts to new advanced guidelines Practical Cardiology Principles and Approaches covers all aspects of cardiology in one quick and current resource Packed with useful tips and step by step guidance this updated second edition reviews new drugs new invasive and noninvasive therapeutic approaches and new developments in cardiology foundations imaging modalities management approaches and specific interventions for all common cardiovascular disease modalities in all patient care settings Offers practical plans of action for all major cardiovascular topics and diseases Includes three new chapters on electrophysiology including tracing interpretation mechanisms diagnoses and therapies and hypotension syncope and sudden cardiac death Features updated and expanded content throughout including new findings non ST elevation in specific populations elderly women diabetes in heart disease and more Provides integrated key points that offer quick clinical summaries for all aspects of common cardiovascular conditions Contains more than 125 full color illustrations with many algorithms of diagnostic and therapeutic pathways

Strandness's Duplex Scanning in Vascular Disorders R. Eugene Zierler,David L. Dawson,2015-09-21 Now in its updated fifth edition Strandness s Duplex Scanning in Vascular Disorders proves why it s still the classic text on the use of duplex scanning in the study and diagnosis of vascular disorders This evidence based real world text is now expanded to cover all vascular duplex ultrasound topics including principles and instrumentation cerebrovascular aortoiliac and peripheral arterial peripheral venous visceral vascular and preoperative planning intraoperative assessment and procedural guidance

Research Awards Index ,1982

Molecular and Multimodality Imaging in Cardiovascular Disease

Thomas H. Schindler,Richard T. George,Joao A.C. Lima,2015-07-15 This book provides the most up to date coverage of the combined use of imaging modalities in order to acquire important functional and morphological information on cardiovascular disease and enhance disease detection The recent developments in PET MRI cardiac CT PET CT and SPECT CT and their impact on clinical practice are explained and special attention is also devoted to imaging parameters and protocols for use in practice and research The utility of multimodality imaging techniques for diagnosis and evaluation is discussed in the context of various clinical scenarios including ischemic cardiomyopathy myocarditis myocardial fibrosis cardiac sarcoidosis and atherosclerotic plaque disease Written by renowned researchers and clinicians the book is an ideal concise reference on today s most advanced imaging techniques It will appeal to all clinicians trainees and technicians who are involved in the diagnosis and risk assessment of cardiovascular disease

Pediatric Critical Care E-Book Jerry J. Zimmerman,Bradley P. Fuhrman,2011-03-24 Provide the latest in superior quality care for critically ill children with the full color updated 4th Edition of Fuhrman and Zimmerman s Pediatric Critical Care In print and now online Drs Bradley P

Fuhrman and Jerry J Zimmerman use a comprehensive organ systems approach to help you manage a full range of disease entities Get up to the minute knowledge of topics such as acute lung injury multiple organ dysfunction syndrome and more Implement new clinical techniques and diagnostic tests weigh the varying perspectives of six associate editors with expertise in the field reference 1 000 illustrations to aid diagnosis and keep sharp with online access to board style review questions This definitive title will ensure that you consistently deliver the very best intensive care to your pediatric patients Focus on the development function and treatment of a wide range of disease entities with the text s clear logical organ system approach Keep all members of the pediatric ICU team up to date with coverage of topics particularly relevant to their responsibilities Keep current with the latest developments in palliative care mass casualty epidemic disease acute respiratory failure non invasive ventilation neurocritical care neuroimaging hypoxic ischemic encephalopathy stroke and intracerebral hemorrhage systemic inflammatory response syndrome acute lung injury multiple organ dysfunction syndrome and much more Quickly find the information you need with sections newly reorganized for easier access Gain the perspectives of six expert associate editors on all the new developments in the field Understand complex concepts quickly and conclusively with a brand new full color format and more than 1 000 illustrations Search the full text download the image library and access online board review questions targeting every relevant topic all at www.expertconsult.com

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