

Contemporary Management of Complex Ventricular Arrhythmias

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Abstract

Percutaneous catheter ablation is an effective and safe therapy that can eliminate ventricular tachycardia, reducing the risks of both recurrent arrhythmia and shock therapies from a defibrillator. Successful ablation requires accurate identification of arrhythmic substrate and the effective delivery of energy to the targeted tissue. A thorough pre-procedural assessment is needed before considered 3D electroanatomical mapping can be performed. In contemporary practice, this must combine traditional electrophysiological techniques, such as activation and entrainment mapping, with more novel physiological mapping techniques for which there is an ever-increasing evidence base. Novel techniques to maximise energy delivery to the tissue must also be considered and balanced against their associated risks of complication. This review provides a comprehensive appraisal of contemporary practice and the evidence base that supports recent developments in mapping and ablation, while also considering potential future developments in the field.

Keywords

Ventricular arrhythmia, ventricular tachycardia, mapping, scar, ablation, endocardial, epicardial

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Sudden cardiac death is a leading cause of global mortality, with 6 million deaths per year attributed to ventricular tachyarrhythmia.¹ In at-risk groups, ICD improves survival, and is superior to medical therapy in both the primary and secondary prevention of sudden death.²⁻⁴ ICD therapy does not prevent arrhythmia, of course. Recurrence is common, even in the presence of anti-arrhythmic medications, which can themselves be associated with significant adverse effects.⁵⁻¹⁰ ICD shock therapies are also associated with increased mortality and reduced quality of life.¹¹⁻¹⁴

Percutaneous catheter ablation is an effective and safe solution that can eliminate ventricular tachycardia (VT), reducing the risk of recurrent arrhythmia and future ICD therapies. In expert hands this can be achieved with low procedure-related complications and extremely low early mortality.¹⁵⁻²⁰

Catheter Ablation: Indications

In patients with structural heart disease, expert consensus guidelines currently recommend catheter ablation for VT after failure of anti-arrhythmic drug (AAD) therapy, or for patients in whom AAD therapy is either not tolerated or not desired (class I indication).²¹

The most robust evidence for catheter ablation is in patients with both VT and ischaemic heart disease (IHD). VANISH was a randomised controlled trial in which patients with IHD and an ICD, who experienced VT despite AAD therapy, were randomised to either catheter ablation or an escalation in AAD therapy. After a mean follow-up of >2 years, a significant reduction in the combined primary outcome of death, ICD shock or VT storm was

observed in the ablation cohort, with a subgroup analysis showing that patients who were already taking amiodarone obtained the greatest benefit.²² In the IHD population, catheter ablation is therefore recommended over escalation in AAD therapy for patients who experience VT despite amiodarone.

In patients with IHD, catheter ablation may also be considered after a first episode of monomorphic VT to reduce the future risk of shock therapies (class IIb indication). This recommendation is supported by the findings of SMASH-VT, a randomised controlled trial in which patients with a history of MI and a secondary prevention ICD indication were randomised to either ICD alone or ICD plus prophylactic catheter ablation. In this trial, appropriate ICD shocks were significantly reduced in the catheter ablation cohort with no increase in mortality.²³

These findings were further supported by VTACH, a randomised controlled trial of ICD versus ICD and ablation, which recruited patients with prior stable VT, MI and reduced ejection fraction (<50%). Time to recurrence of VT or ventricular fibrillation (VF) was significantly longer in the ablation group (18.6 versus 5.9 months), while freedom from ventricular arrhythmia at 2 years was also significantly greater postablation (47% versus 29%).²⁴

Ablation prior to ICD implantation is also a potentially promising strategy in patients with IHD, but this has not yet been shown to offer benefit over a deferred ablation strategy.²⁵ However, we eagerly await the publication of on-going trials in this area, such as PARTISA (NCT01547208).²⁶

Contemporary Management Of Ventricular Arrhythmias

Lauren Gardner



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Contemporary Management of Ventricular Arrhythmias Arnold J. Greenspon, 1992 *Contemporary Management of Ventricular Arrhythmias*, 1992 *Modern Treatment of Ventricular Arrhythmias* Simone Savastano, Roberto

Rordorf, 2023-02-03 **The Wide Spectrum of Ventricular Arrhythmias: From out-of-hospital cardiac arrest to advanced in-hospital treatment** Alessandro Zorzi, Simone Savastano, Hanno L. Tan, Veronica Dusi, Roberto Rordorf, Enrico Baldi, 2024-03-13 **Contemporary Concepts in Cardiology** Richard Gorlin, George D. Dangas, Pavlos K. Toutouzas, M.M. Konstadoulakis, 2012-12-06

In the era of instant global communication medicine is an international discipline characterized by a wide range of patient referral systems world wide discussion of clinical and research findings and an explosion in the medical literature Perhaps no field has progressed more than cardiology in the past few years Contemporary Concepts in Cardiology has been conceived as a supplement to the classic cardiology textbooks for the use of practicing physicians cardiologists in training medical students and research investigators This volume focuses on associations between refinements in the understanding of disease and clinical applications The material is presented in a way that limns the latest advances and focuses thinking towards future developments in cardiology The Editors have assembled a respected international panel of contributors so that each chapter is authored by a well known specialist in his or her field Every attempt was made to avoid the fragmentation which often characterizes the digest approach Because the constant flow of information makes it nearly impossible to construct a timely book on advances in cardiology the chapters in this volume describe the current concepts in cardiology and their underlying rationale rather than attempting a comprehensive review of the most recent papers in each discipline **Cardiac Arrhythmias, Pacing & Electrophysiology** P.E. Vardas, 2012-12-06

Europace 97 was held in Athens Greece on 8 11 June Leads were as usual an important topic with the earl 1997 in the city of classical civilisation and learning iest mention of the then new polyurethane leads Future Though now held in modem surroundings and meeting conferences elaborated on these basic topics while pro facilities the influence of the ancient city state was un gressively adding sensors and sensor function dual mistakable with the architecture and learning of antiquity chamber pacing and recognising the development of looming over the city by its influence over the intellectual clinical cardiac electrophysiology activities of the symposium The ancient magnificence of Clinical cardiac electrophysiology and compre the site was matched by the novelty of modem art and hension of arrhythmias has been largely a development science Europace is a European symposium begun in of the twentieth century With the description and 1979 and has occurred every second year since Con recording of the bundle of His depolarisation by direct sistent with its importance and continental reach the actual access and by catheter modem clinical investigation of symposium has moved to different cities throughout arrhythmias and cardiac electrophysiology began The Western Europe The first symposium was held in London disciplines of cardiac stimulation and of investigation of and subsequent symposia have been held in Torremolinos

arrhythmias impulse formation and A V conduction Ostend Florence Istanbul and other cities Because of the were essentially separate for many years **Electrophysiological Disorders of the Heart E-Book** Sanjeev Saksena,A. John Camm,2011-12-12 The new edition of Electrophysiological Disorders of the Heart helps you diagnose and treat a full range of heart rhythm disorders using today s latest technologies and therapies It provides practical hands on coverage of hot topics such as pediatric EP imaging echocardiography guided EP procedures regenerative therapies cardiac pacing and more Now available in a new full color format the title also includes easy online access at www.expertconsult.com Discover new ways to treat and manage the full range of heart rhythm disorders with content focused on common clinical features diagnosis and management Review expert management strategies to help you handle complex patient problems Stay current with the latest molecular and technical advances as well as new treatment options implemented over the last few years Use the latest technologies and devices to accurately diagnose and manage heart rhythm disorders Consult new and expanded coverage of regenerative therapies echo guided procedures cardiac pacing and CRT as well as a new section on pediatric electrophysiology and imaging Enjoy improved visual guidance with many new full color images Log on to www.expertconsult.com to easily search the complete contents online and access a downloadable image library [Heart Metabolism in Failure](#) R.A. Altschuld,R.A. Haworth,1998-09-21 Heart failure continues to be a major public health problem in the United States with close to half a million new cases diagnosed each year Moreover deaths from heart failure are on the increase in part because of advances in the treatment of other fatal diseases and in part from the prevalence of lifestyles indifferent to the risk factors for heart disease This is not to say that no progress has been made in the treatment of heart failure While for many years treatment was confined to the management of the symptoms in recent years with the advent of ACE inhibitor and blacker therapies real improvements in cardiac function and life expectancy have been achieved Volume 4B Leier On a more basic level enormous advances have been made in describing many of the changes in structure and function of the heart and the parallel neurohumoral and circulatory adaptations that occur during the onset of failure These advances have been made not only by using various animal models of heart failure but also using fresh failing human heart tissue which has become readily available for experimental investigation since the advent of cardiac transplantation Understanding the significance of many of these changes that occur during the transition to failure and the role they play in the etiology of failure is however a much more difficult task These are exciting times in heart failure research It is as though many of the pieces of the jigsaw puzzle are available but the puzzle has yet to be assembled The objective of these volumes is to bring together some advances that have been made in recent years in defining one aspect of the failing heart that is the role of altered metabolism in order to facilitate assembly of the puzzle [Advanced Mapping Techniques in Contemporary Management of Ventricular Arrhythmias](#) ,2023 [Intracardiac Echo Imaging in Atrial and Ventricular Arrhythmia Ablation, An Issue of Cardiac Electrophysiology Clinics, E-Book](#) Fermin Carlos Garcia,Luis Casis Sáenz,Pasquale Santangeli,2021-05-17 This issue of

Cardiac Electrophysiology Clinics Guest Edited by Drs Fermin C Garcia Luis C Saenz and Pasquale Santangeli is dedicated to Intracardiac Echo Imaging in Atrial and Ventricular Arrhythmia Ablation This is one of four issues selected each year by the series Consulting Editors Ranjan K Thakur and Andrea Natale Topics include but are not limited to How to use intracardiac echography to recognize normal cardiac anatomy Intracardiac echography to guide catheter ablation of ventricular arrhythmias in ischemic cardiomyopathy Intracardiac echography to guide ablation of parahisian arrhythmias Utility of ICE to guide transseptal catheterization for different EP procedures Intracardiac echography to guide catheter ablation of atrial fibrillation Role of intracardiac echography for transcatheter occlusion of left atrial appendage Intracardiac echography to guide catheter ablation of idiopathic ventricular arrhythmias Intracardiac echography to guide mapping and ablation of arrhythmias in congenital heart disease patients Prevention and early recognition of complications during catheter ablation by Intracardiac echography Intracardiac echography to evaluate radiofrequency lesion creation and Image integration using intracardiac echography and 3 D reconstruction for mapping and ablation of atrial and ventricular arrhythmias Clinical Management of Heart Failure James B. Young, Roger M. Mills, 2004 The various classes of medications employed in the treatment of heart failure are reviewed as well as the clinical trials shaping heart failure therapeutics Appropriate staging of therapeutics is discussed along with rational poly pharmacy Treatment options for advanced heart failure are concisely presented

Manual of STEMI Interventions Sameer Mehta, 2017-07-17 Benefit from this concise yet comprehensive manual designed to improve the practice and process of STEMI interventions Understand the varied pharmacological options available in managing STEMI patients including newer anti coagulants Improve your STEMI procedure technique through expert guidance including stent choice and other techniques such as trans radial procedures Provides an overview of STEMI networks internationally and how to set up a STEMI program Reviews future perspectives for STEMI and the role of telemedicine for STEMI procedures **Drugs for the Heart E-Book** Lionel H. Opie, Bernard J. Gersh, 2011-12-01 The new edition of this market leading cardiac drug resource equips you with the latest advances in cardiovascular pharmacology one of the most rapidly changing areas of medicine It not only offers in depth information on all of the drug classes used to treat heart disease but also covers new drug classes drug use for single and multiple problem management and more Dynamic full color drawings illustrate key pharmacological and physiological actions and a user friendly organization directs you to the information you need An increased emphasis on the practical use of drugs saves you valuable time in researching relevant information Features the practice proven experience of two well known editors who represent the best possible combination of clinical and research expertise in cardiovascular therapeutics Offers easy to access useful information on when to use each drug and for what conditions in a chapter entitled Which Drug for Which Disease Discusses the management of single diseases and multiple comorbidities Summarizes each drug class at the end of chapters to expedite reference Incorporates all

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Drugs for the Heart Lionel H. Opie, Bernard J. Gersh, 2013-01-23 Drugs for the Heart presents highly portable up to date information on every drug class used to treat cardiovascular disease Drs Lionel H Opie and Bernard J Gersh put the latest dosages interactions indications and contraindications side effects and more at your fingertips equipping you to make effective clinical decisions on behalf of your patients Quickly check when to use each drug for any condition with the popular Which Drug for Which Disease chapter Get expert advice from the practice proven experience of two well known editors who represent the best possible combination of clinical and research expertise in cardiovascular therapeutics Expedite your reference with summaries of each drug class at the end of chapters Carry it with you anywhere thanks to a highly compact pocket sized format Navigate the latest pharmacologic advances through coverage of the newest drugs and drug classes as well as all the latest clinical trial results and evidence used to treat heart disease Effectively manage comorbid diseases Apply international insights into cardiac drugs thanks to new global contributors Visualize key pharmacologic and physiologic actions thanks to dynamic new full color drawings Access the complete contents online at Expert Consult with regular online updates posted by leading cardiologist Dr Opie Your purchase entitles you to access the web site until the next edition is published or until the current edition is no longer offered for sale by Elsevier whichever occurs first If the next edition is published less than one year after your purchase you will be entitled to online access for one year from your date of purchase Elsevier reserves the right to offer a suitable replacement product such as a downloadable or CD ROM based electronic version should access to the web site be discontinued

Clinical Cardiac Electrophysiology Mark E. Josephson, 2002 The gold standard in electrophysiology Dr Josephson s book brings to light current relevant practices aimed at medical internists clinical cardiologists and electrophysiologists emphasizing the capabilities and limitations of clinical cardiac electrophysiology techniques Thoroughly revised the Third Edition includes increased coverage of catheter ablation and the latest information on new catheters and computers that measure electrical activity in the heart Full color heart maps and illustrations of electrophysiologic concepts help clarify the text A Brandon Hill recommended title

Sudden Cardiac Death, An Issue of Heart Failure Clinics Raul Weiss, Emile Daoud, 2011-04-28 Sudden cardiac death SCD is the number one killer in the United States claiming the lives of more than 300 000 Americans every year Thus it is important for heart failure specialists to be knowledgeable about strategies to prevent manage risk for and treat conditions leading to sudden cardiac death These topics and more are covered in this issue

Cardiac Arrhythmias 1999 Antonio Raviele, 2012-12-06 Lectures and Structured Symposia

Drug-Induced Diseases James E. Tisdale, Douglas A. Miller, 2010-02-11 According to the authors a drug induced disease as an unintended effect of a drug which results in mortality or morbidity with symptoms sufficient to prompt a patient to seek medical attention and or require hospitalization Since the first edition of this book was published in 2005 numerous drugs have been withdrawn from the market in the United States as a result of morbidity and or mortality associated with drug induced diseases Despite best efforts to assure that all drugs are safe and effective millions of patients each year develop drug induced diseases Every time a patient presents with a new disease or an exacerbation of an existing condition someone needs to ask Could this be drug related Now in its second edition this popular and essential comprehensive resource provides a detailed analysis of how to identify prevent and manage drug induced diseases Edited by James E Tisdale and Douglas A Miller with contributions from experts distinguished in their respective specialties Drug Induced Diseases is organized logically and is easy to use for pharmacists physicians nurses and pharmacy students alike Inside you ll find Chapters dedicated to each disease state In depth tables throughout each chapter A new section on Drug Induced dermatologic diseases New drugs implicated as the cause of specific disease s The inclusion of the Levels of Evidence classification scheme for identifying drug induced diseases And much more [Oh's Intensive Care Manual - E-BOOK](#) Jonathan M. Handy, Bala Venkatesh, 2025-09-19 Significantly revised from cover to cover Oh's Intensive Care Manual 9th Edition is a must have quick reference resource for ICU physicians at all levels of experience New and updated topics cover all aspects of intensive care in sufficient detail for daily practice or exam preparation while also keeping you up to date with the latest innovations in the field All content has been thoroughly reviewed to ensure coverage of contemporary exam curricula and essential clinical topics resulting in a single convenient text that covers exactly the information you need to know in every key area of intensive care medicine Balances information on management and treatment of conditions with essential pathophysiological and pharmacological background all with an increased focus on clinical management strategies to optimise patient outcomes Offers authoritative treatment guidelines covering both adult and paediatric patients in the ICU Discusses the latest developments in such areas as ARDS sepsis neurological disorders and morbid obesity Provides an increased number of summary boxes tables and charts to facilitate quick retrieval of essential information Contains new sections on Decision Making Special Populations The Post Operative Patient and more Includes numerous new chapters Allied health professionals in ICU Clinical assessment of the critically ill patient Determination of death in ICU Mechanical cardiac supports Acute aortic syndrome Overview of respiratory failure in ICU COVID 19 Neuromonitoring Pre operative assessment of high risk patient Post operative thoracic surgical patient Post operative neuro surgical patient Principles of organ procurement and donation and more Shares the knowledge and global expertise of a who's who of international specialist ICU Consultants including new editor Professor Bala Venkatesh Universities of Queensland and New South Wales Australia Provides an extensive list of important up to date references Any additional digital ancillary content may publish up to 6

weeks following the publication date Brand new Editor Professor Bala Venkatesh University of Queensland Australia Increased focus on clinical management strategies to optimize patient outcome Latest developments in such areas as ARDS Sepsis Neurological disorders morbid obesity Increased number of summary boxes tables and charts to facilitate quick retrieval of essential information Characterization and Clinical Management of Dilated Cardiomyopathy Marco Merlo, 2021-01-12 Dilated cardiomyopathy DCM is a particular phenotype of non ischemic systolic heart failure frequently recognizing a genetic background and affecting relatively young patients with few comorbidities Nowadays long term survival of DCM patients has been markedly improved due to an early diagnosis and uninterrupted and tailored follow up under constant optimal medical and non pharmacological evidence based treatments Nevertheless DCM is still one of the most common causes of heart transplantation in the western world Clinical management requires an integrated and systematic use of diagnostic tools and a deeper investigation of the basic mechanisms underlying the disease However several emerging issues remain debated Specifically the genotype phenotype correlation the role of advanced imaging techniques and genetic testing the lack of appropriate risk stratification models the need for a multiparametric and multidisciplinary approach for device implantation and a continuous reclassification of the disease during follow up remain challenging issues in clinical practice Therefore the aim of this Special Issue is to shed the light on the most recent advancements in characterization and clinical management of DCM in order to unveil the conundrum of this particular disease

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