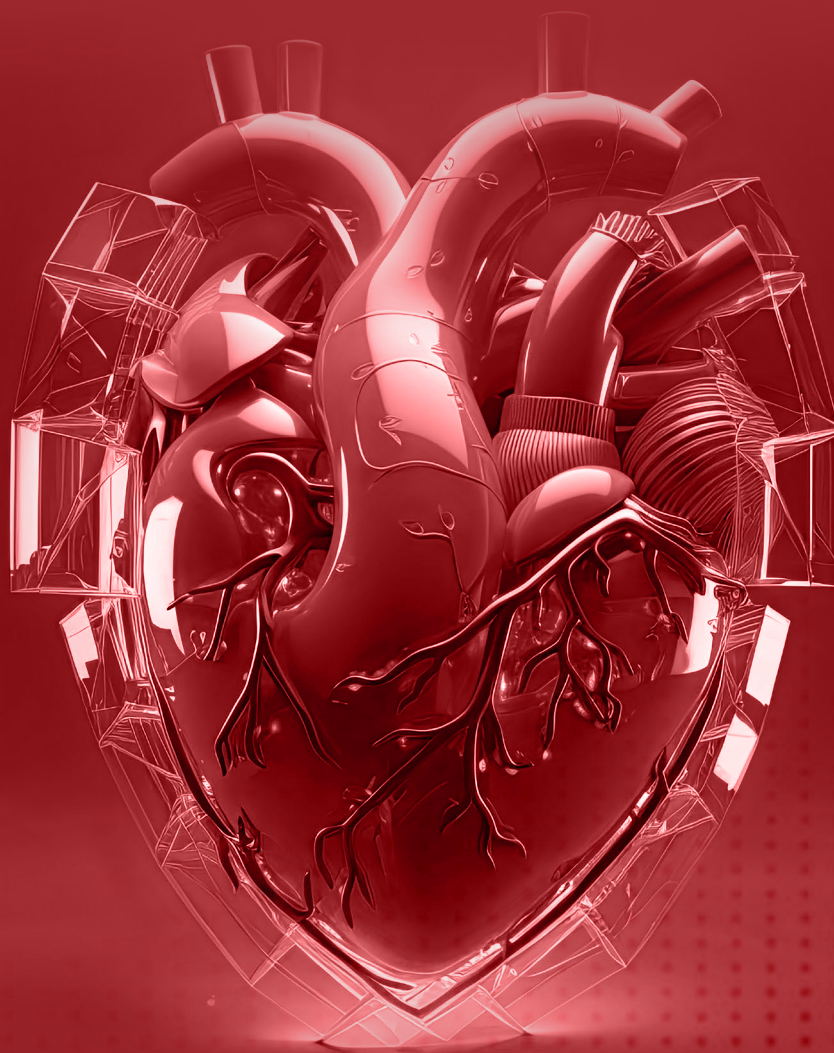


3RD EDITION OF INTERNATIONAL
HEART CONGRESS

JUNE 05-07 | 2025
ROME, ITALY



VENUE:

NH VILLA CARPEGNA, VIA PIO IV, 6, 00165 ROMA RM, ITALY

3rd Edition of International

Heart Congress

JUNE
05-07

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ABSTRACTS

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Keynote Speakers



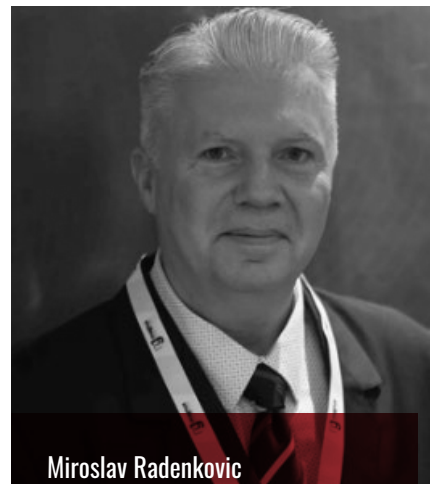
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Benetti Foundation, Argentina



Mekhman N Mamedov

National Research Center for Preventive Medicine,
Russia



Miroslav Radenkovic

University of Belgrade, Serbia



Narendra Kumar

HeartbeatsZ Academy, United Kingdom



Sergey Suchkov

N. D. Zelinskii Institute for Organic Chemistry of the
Russian Academy of Sciences, Russia



Syed Raza

Awali Hospital, Bahrain

*Thank You
All...*

Keynote Speakers



Thomas Bernd Dschietzig

Relaxera GmbH & Co. KG, Germany



Thomas J Webster

Hebei University of Technology, China



Yong Xiao Wang

Albany Medical College, United States

*Thank You
All...*



Welcome Message

It is my great pleasure to welcome Reputed Faculty/ Delegates from across the Globe to our Forthcoming 15th Cardiomersion Global Workshop at Rome Italy in collaboration with 3rd International Heart Congress. After the highly successful 14th Global conference in India and our previous successful collaborations with Magnus group at Paris (2022) and Tokyo (2023) we are once again looking forward for an overwhelming response from across the Globe.

In the past decade there have been tremendous technological advancements in the Management of Cardiovascular and Thoracic diseases. However more important yet less highlighted, are the unimaginable advancements in the Surgical skills and Team approach which has actually made complex procedures look simpler, more effective in terms of immediate and long term outcomes.

In this Forthcoming Cardiomersion Workshop we are inviting experts from all across the Globe to share their individual experiences as well as knowledge on how the advancing technologies can be best utilized most appropriately for reducing complications and for improving outcomes by appropriate enhancements of skills to make the best utilization of the advancing technologies. Along with this, the most appropriate use of Prevention, Guidelines directed Medical management as well as Rehabilitation will also contribute towards further improving the comprehensive management.

All Cardiologists, Cardiovascular Thoracic Surgeons, Cardiovascular Anesthesiologists, Intensivists, Pulmonologists, Endocrinologists, Nephrologists, Oncologists, Physiotherapists, Dieticians, Psychologists, Nurses, Physician Assistants, Technicians, Healthcare Managers along with any other specialists who deal with Cardiovascular Thoracic as well as other Lifestyle diseases are welcome to actively participate in this workshop so that we can accomplish our goal of improving Cardiovascular Thoracic disease management Globally and reduce the morbidity as well as mortality related to Cardiovascular Thoracic and other Lifestyle diseases, which have now emerged as the leading causes of Death.

Rome is a very beautiful and we also welcome all participants to enjoy the tourist attractions of the city, utilizing this opportunity to improve Lifestyle and to get rid of all your stress which is now emerging as a major Risk factor for precipitating fatal complications at an early age.

Dr. Deepak Puri

Organizing Chairman Cardiomersion 2025, Senior Director
Cardiovascular Thoracic Surgery, Max Super Specialty Hospital, Mohali, India



Welcome Message

This third congress undoubtedly promises a lot of important and innovative information in the field of Cardiology, undoubtedly to face the serious problems of management and treatment with the impact of various pathologies such as coronaré heart disease or heart failure in an increasingly elderly population with a higher incidence of heart failure All these and other topics will be discussed in order to improve the lives of patients and make more effort to work in the various areas.

Prof Federico Benetti

President Benetti Foundation



Welcome Message

Dear colleagues!

Welcome to all participants of the 3rd Edition of International Heart Congress (Heart Congress 2025), taking place from June 05-07, 2025, in Rome, Italy. The organizers have designated the dominant theme of this year's conference as "Heart Health in Focus: Bridging Science, Innovation, and Patient Care". This implies that scientific achievements, primarily innovative technologies, should be directed for the benefit of patients with cardiac pathology.

Over the past 30 years, cardiovascular mortality worldwide has decreased by 30%. But in most regions of the world, they occupy a large place in adult mortality. Of course, as a result of the use of innovative technologies and secondary prevention, the situation is improving. But we must use the opportunities of primary prevention at the population level. It is risk factors that play an important role in cardiovascular morbidity. I believe that one of the key factors is also the comorbidity of vascular pathology and somatic diseases. Thus, a personalized approach comes to the forefront in the treatment and prevention of patients with cardiac pathology. The conference program is very interesting and covers different countries of the world. The conference is growing, which means its importance is becoming more and more important.

I wish success to the conference participants.

Professor Mekhman N. Mamedov, MD, PhD

Head of the Department of Secondary Prevention of Cardiovascular Diseases,
National Medical Center for Therapy and Preventive Medicine, Moscow, Russia



Welcome Message

Dear colleagues, dear congress visitors, it is an honor and a pleasure to welcome you to the “3rd International Heart Congress” and to write a few welcome notes, as well. I am confident that you will be in the position to join basic and clinical scientists, healthcare experts, pharmacologists, and cardiologists to discuss and exchange your valuable opinions in regard to various vascular and heart diseases, their non-pharmacological and pharmacological managements, and different diagnostic procedures, thus promoting novel advancements in cardiovascular health. I hope that the forthcoming congress will help you advance your current knowledge and attract our distinguished experts to collaborate with you in the future to set even higher standards in this important scientific and clinical field.

I wholeheartedly welcome you and wish you the very best in your work.

Prof. Dr. Miroslav Radenkovic

Faculty of Medicine–University of Belgrade, Serbia



Welcome Message

Dear Distinguished Colleagues,

I am delighted to extend a warm welcome to this year's Heart Congress 2025 at Rome, Italy.

As we gather to explore the latest advances in cardiac care, I am particularly excited to share insights on the emerging field of Pulse Field Ablation (PFA) for atrial fibrillation.

In my upcoming presentation on "Complications with Pulse Field Ablation for Atrial Fibrillation," we will critically examine both the promises and challenges of this groundbreaking technology. While PFA represents a significant leap forward in AF treatment, understanding its potential complications is crucial for optimal patient outcomes. Especially in times, when more and more complications are emerging with wider use, it assumes significance.

I look forward to engaging in meaningful discussions with you all, sharing experiences, and learning from your perspectives. This conference provides an invaluable opportunity to shape the future of Cardiology through collaborative learning and scientific exchange.

Together, let's advance our understanding of safer and more effective AF treatments.

Narendra Kumar, MB, MSc, DCC, PhD, FRCP, FACC, FESC, ECES

HeartbeatsZ Academy, United Kingdom



Welcome Message

It is our genuine pleasure to invite you to attend 3rd Edition of International Heart Congress in the Great Rome, Italy, to be held on June 05 -07, 2025.

This event features opportunities to make network with colleagues and partners from the Globe in an exciting environment. The scope and quality of the scientific exchange makes this Conference the elite cardiovascular research and instructional meeting in the World. The Conference is to provide an innovative and comprehensive overview of the latest research developments in cardiovascular medicine, primarily in the areas of personalized cardiology and preventive cardiac surgery. The major goal will be to demonstrate recent development in prevention and prophylaxis, cardiovascular risk prediction based on risk assessment procedures. The impact of the latest cardiac biomarker-based platforms to illustrate and to monitor subclinical and/or clinical atherosclerosis, myocarditis, aortic and arterial diseases will be discussed.

The Conference would feature three fantastic days of the best in cardiovascular clinical practice and scientific content covering interdisciplinary aspects of basic, clinical, applied and translational applications. So, medical doctors, scientists, biodesigners and bioengineers, health professionals and healthcare givers will come together in order to obtain and exchange information on advances in the management of chronic cardiac disorders being controlled via applications of canonical therapeutic and newest preventive, prophylactic and rehabilitative manipulations. The Conference will also provide a unique opportunity for Pharma to exhibit their new products and to contact with the cardiologists more closely. Participants will have the opportunities to share information and the latest advance in cardiology to renew the friendship, and to increase worldwide collaboration.

We are most pleased to invite you to participate in this Meeting, which will feature several sessions and invited lectures on the basic research and translational applications of heart disease. This Conference will be of great value to interns, residents, postdocs and fellows of Cardiology as well as cardiovascular scientists, biodesigners and biotechnologists, academic cardiologists and practicing physicians. It will be a learning experience regarding the role of Personalized & Precision Cardiology in improving the therapy of cardiovascular disease.

We do hope that you will enjoy the Congress and that your interaction with your colleagues will stimulate a creative exchange of ideas and will be personally rewarding!

Dr. Sergey Suchkov, MD, PhD

N.D. Zelinskii Institute for Organic Chemistry of the Russian Academy of Sciences, Moscow, Russia
Centro de Estudios de la Fotosíntesis Humana, Aguascalientes, México



Welcome Message

It is a pleasure to welcome you to this important scientific event entitled “International Heart Congress-Rome 2025 - Heart Health in Focus: Bridging Science, Innovation, and Patient Care”.

Cardiovascular events continue to represent a major cause of global mortality, among them heart failure and its complications. In patients with Heart Failure, mortality is still very high—approximating 50% over 5 years—which means that this syndrome is meanwhile deadlier than many cancer types.

It will be an important aspect of this congress to bring together experts from the fields of basic research, translational medicine, pharma R&D, and patient care in order to help improve cardiovascular outcomes.

I renew the welcome to all of you and wish you all the best in your work.

Prof. Dr. Thomas Bernd Dschietzig, MD

CEO, Relaxera GmbH & Co. KG; Bensheim, Germany
Relaxera is a German pharma company dedicated to developing synthetic human relaxin-2 for Heart Failure with Preserved Ejection Fraction.



Welcome Message

Not in the right environment to innovate and commercialize your Heart research? Not feeling appreciated? Move!

Without a doubt, recent advances in heart research including biomaterials, nanotechnology, drugs, diagnosis, prevention, and more have revolutionized cardiovascular medicine over the last several decades. But, where are the products? While some of these wonderful advances have made it to the market helping real patients, many have not. Are we doing enough to translate heart research into real products? Are companies not paying attention to this wonderful research? Are Universities not doing enough to license academic research or start new companies? What about federal funding agencies? Are they supporting the commercialization of heart research? And, most importantly, are you in the right environment to commercialize your heart research?

Well in my own experience, above all else, it takes a supportive environment. It takes a proper mind set to translate lab research into commercial products. It takes determination and fortitude to see it through. You need to surround yourself with the right people—and if you are currently not around a supportive optimistic environment, leave! Leave the University you are at - I did! Leave that company that is stifling your advances-I did! Once I found a truly supportive environment, I was able to not only start numerous companies on my heart research, but commercialize my over 25 years of University research into medical devices now in over 30,000 patients with no implant failures. No infection. No chronic inflammation. No implant loosening. No failures. No cancer. Better human health, including the heart, undoubtedly.

So I encourage everyone to find that right environment. Attend HEART CONGRESS 2025 at the heart of innovation and commercialization! Meet the right people! Be energized by optimistic people! At HEART CONGRESS 2025, we will not only discuss the next heart research breakthroughs, but more importantly, we will discuss how to commercialize it! I look forward to seeing everyone!

Thomas J. Webster, Ph.D.

H-index: 129

Fellow, AANM, AIMBE, BMES, FSBE, IIAM, IJN, NAI, and RSM

Nominated for the Nobel Prize in Chemistry (2025)



Welcome Message

Dear Congress Visitors:

As the Congress Organizing Committee Member, Keynote Speaker and Session Chair, I am very honored and pleased to write these welcome notes.

The current congress, Heart Congress 2025, focuses to address "Heart Health in Focus: Bridging Science, Innovation, and Patient Care", to bring leading researchers, scientists, clinicians, and industry professionals together from cardiovascular health and disease fields around the world. The congress will include outstanding keynote sessions, plenary lectures, invited speeches, research presentations, technical demonstrations, and panel discussions around the world.

Heart Congress 2025 covers a comprehensive spectrum of topics ranging from Cardiovascular Diseases to Cardiovascular Engineering and Technology. This congress embraces diverse aspects such as Pediatric and Congenital Cardiovascular Disease, Cardio-Oncology, Geriatric Cardiology and many more. All the planned cutting-edge presentations and demonstrations provide deep insights into molecular and cellular cardiology and lipidology, transcend traditional boundaries, and encompass cutting-edge subjects from Arteriosclerosis to Stem Cell Research and Regeneration in Cardiology.

I am very excited to look forward to meeting with you at this upcoming fantastic congress.

Prof. DR. Yong-Xiao Wang

Albany, New York, USA



ABOUT MAGNUS GROUP

Magnus Group, a distinguished scientific event organizer, has been at the forefront of fostering knowledge exchange and collaboration since its inception in 2015. With a steadfast commitment to the ethos of Share, receive, grow, Magnus Group has successfully organized over 200 conferences spanning diverse fields, including Healthcare, Medical, Pharmaceuticals, Chemistry, Nursing, Agriculture, and Plant Sciences.

The core philosophy of Magnus Group revolves around creating dynamic platforms that facilitate the exchange of cutting-edge research, insights, and innovations within the global scientific community. By bringing together experts, scholars, and professionals from various disciplines, Magnus Group cultivates an environment conducive to intellectual discourse, networking, and interdisciplinary collaboration.

Magnus Group's unwavering dedication to organizing impactful scientific events has positioned it as a key player in the global scientific community. By adhering to the motto of Share, receive, grow, Magnus Group continues to contribute significantly to the advancement of knowledge and the development of innovative solutions in various scientific domains.



ABOUT HEART CONGRESS 2025

We are pleased to welcome you to the **3rd Edition of the International Heart Congress (Heart Congress 2025)**, taking place in **Rome, Italy, and virtually from June 5–7, 2025**. This hybrid gathering brings together cardiovascular professionals, researchers, and innovators from around the world to explore the latest advancements in cardiac science and care. With the theme “*Heart Health in Focus: Bridging Science, Innovation, and Patient Care*,” this year’s congress places a spotlight on integrative approaches that connect groundbreaking research with real-world clinical solutions.

This abstract book captures the scientific essence of Heart Congress 2025, highlighting a wide array of topics including cardiovascular diseases, cardio-oncology, pediatric cardiology, geriatric care, regenerative therapies, lipidology, and emerging technologies in cardiovascular engineering. The selected works represent the depth of inquiry and the global commitment to tackling cardiovascular challenges through innovation, evidence-based practice, and interdisciplinary collaboration.

We hope this event not only informs but also inspires. As you delve into the abstracts and attend the sessions, whether on-site or online, may you discover new perspectives, spark future research ideas, and build lasting professional connections. Your participation is vital to the collective mission of advancing cardiovascular health and improving patient outcomes globally.



ABOUT CPD Accreditation



Continuing Professional Development (CPD) credits are valuable for Heart Congress 2025 attendees as they provide recognition and validation of their ongoing learning and professional development. The number of CPD credits that can be earned is typically based on the number of sessions attended. You have an opportunity to avail 1 CPD credit for each hour of Attendance.

Some benefits of CPD credits include:

Career advancement: CPD credits demonstrate a commitment to ongoing learning and professional development, which can enhance one's reputation and increase chances of career advancement.

Maintenance of professional credentials: Many professions require a minimum number of CPD credits to maintain their certification or license.

Increased knowledge: Attending Heart Congress 2025 and earning CPD credits can help attendees stay current with the latest developments and advancements in their field.

Networking opportunities: Heart Congress provide opportunities for attendees to network with peers and experts, expanding their professional network and building relationships with potential collaborators.

Note: Each conference attendee will receive 26+ CPD credits.

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3rd Edition of International

Heart Congress

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**KEYNOTE
PRESENTATIONS**

Biography

Federico Benetti^{1*}, Luis Geffner¹, Yan Duarte², Ernesto Penaherrera²

Benetti Foundation, Argentina Hospital Luis Vernazza Ecuador

Surgical fetal stem cells implantation in heart failure patients long term results at 14 years

Direct myocardial transplantation of HFDSCs (Fetal Liver Stem Cells) by open-chest surgical procedure was performed in 10 patients with HF due to nonischemic, nonchagasic dilated cardiomyopathy. All 10 patients survived the operation. At 40 months, the mean (+/-SD) NYHA class decreased from 3.4+/-0.5 to 1.33+/-0.5 (P=0.001); the mean EF increased 31%, from 26.6%+/-4% to 34.8%+/-7.2% (P=0.005); and the mean ETT increased 291.3%, from 4.25 minutes to 16.63 minutes (128.9% increase in metabolic equivalents, from 2.46 to 5.63) (P<0.0001); the mean LVEDD decreased 15%, from 6.85+/-0.6 cm to 5.80+/-0.58 cm (P<0.001); mean performance in the 6-minute walk test increased by 43.2%, from 251+/-113.1 seconds to 360+/-0 seconds (P=0.01); the mean distance increased 64.4%, from 284.4+/-144.9 m to 468.2+/-89.8 m (P=0.004); and the mean result in the Minnesota test decreased from 71+/-27.3 to 6+/-5.9 (P<0.001) 6 patients survived after 40 months 5 of these had complete reverse remodeling after 3 months of implantation.

Results: One patient at 3,6 years that doesn't have complete reverse remodeling of the left ventricle died of arrhythmia the second patient died at 5,4 years for an infection the third patient died at 5,10 years without know the cause (Infection?) the fourth patient died at 7,4 years of heart failure, the fifth patient died at 8,4 years of heart failure, the six patient died at 14,4 years at 83 years old for heart failure.



Prof. Dr Benetti is President - Director and Chief of Cardiac Surgery of the Benetti Foundation Rosario Argentina from 1991 P, Director Emeritus Minimally Invasive Cardiac Institute, Miami Heart Institute and Medical Center, Miami, Florida, 1998-2000 publications 128 books Chapters 10 Lectures Conferences Live Conferences 1000, Internationals Awards Prizes 20 Honorary Member Internationally Society's 5. Dr Benetti did his first off pump coronary surgery in 1978 in Argentina In 1990 describes his surgical technique for fibroses interventricular septum. In 1994 perform for the First time in the world the MIDCAB operation, in 1996 the first Mitral valve replacement Minimally invasive with 3D In 1997 describe the Aortic valve replacement using 3 d through the Right Anterior Thoracotomy In 1997 perform the First Ambulatory Coronary Bypass in The World Through the XIPHOID Approach (MINI OPCAB)Trained surgeons in 45 countries of the world in OFF PUMP Techniques HE Hold 31 US PATENTS of Technology and 2 METHOD Patents the MIDCAB and THE XIPHOID APPROACH. Actually he practices in the BENETTI FOUNDATION ROSARIO.

Conclusion: These initial world wide experience with the surgical direct implantation off liver fetal stem cells in patients with Terminal Heart Failure shows clearly the positive effect in the reverse remodeling of the left ventricle of 50% of the patients and excellent long term results in these type of patients and opens a new avenue for the treatment of the patients of Terminal Heart Disease without any option of treatment.

Mekhman N Mamedov

National Medical Research Center for Therapy and Preventive Medicine Moscow, Russia

Cancer and cardiovascular diseases: Common pathogenesis mechanisms and risk factors

Oncological diseases are the second most common cause of death among adults worldwide after Cardiovascular Diseases (CVD). In clinical practice, comorbidity of cancers and CVD is increasingly registered, which certainly increases the risk of death. The main cause of death in patients with breast, prostate or colorectal cancer is heart disease. Patients with cancer have a higher risk of developing cardiovascular complications compared to individuals without them. On the other hand, individuals with CVD, especially with heart failure, have a risk of developing cancer.

Some pathogenetic pathways in the development of cancer and CVD are common. Chronic inflammation and oxidative stress play an important role in the genesis of cancer and CVD. The chemotherapy drugs increase the inflammatory process, aggravating existing CVD or contributing to their development. There are published data in the literature on the presence of common genetic mutations between cancer and CVD. Screening may be appropriate in certain categories of survivors, taking into account risk factors and the nature of treatment. It should be emphasized that screening for cancer among individuals with CVD, in particular with heart failure, requires further study. Against the background of measures to prevent relapses of cancer, it is necessary to develop comprehensive measures aimed at secondary prevention of the comorbid condition.

Preventive diagnostic and therapeutic strategies should be part of multidisciplinary cardio-oncological care aimed at improving overall outcomes.

Biography



Dr. Mamedov was born on January 10, 1970, in Sheki, Azerbaijan, and is a distinguished Azerbaijani cardiologist based in Moscow, Russia. Dr. Mamedov completed his medical education at the Moscow Medical Academy named after I.M. Sechenov, followed by postgraduate and doctoral studies in cardiology at the National Research Center for Preventive Medicine. Since 2002, Dr. Mamedov has led the Department of Secondary Prevention of Chronic Non-infectious Diseases at the National Research Center for Therapy and Preventive Medicine. Research conducted by Dr. Mamedov focuses on cardiovascular disease epidemiology, risk factors, and pharmacotherapy. Dr. Mamedov has authored 468 articles, 13 monographs, and holds a Hirsch index of 40. Dr. Mamedov serves as the President of the Cardioprogress Foundation, is on the board of the Russian Society of Cardiology, and is Editor-in-Chief of the International Journal of Heart and Vascular Diseases.

Biography

Prof. Miroslav Radenković MD, MS, PhD

Department of Pharmacology, Clinical Pharmacology and Toxicology; Faculty of Medicine; University of Belgrade; Belgrade; Serbia

Clinical pharmacology of sotatercept - The novel quality advancement in biological therapy of pulmonary arterial hypertension

Pulmonary Arterial Hypertension (PAH) remains a debilitating disease with high morbidity and mortality. It is a rare, progressive and ultimately life-threatening disease in which blood vessels in the lungs thicken and narrow, causing significant strain on the heart. Patients with PAH have an abnormally high blood pressure in the arteries of the lungs, causing symptoms such as breathlessness and fatigue. Because disease progresses rapidly for many patients, and frequently accompanied with serious clinical presentation, new treatment opinions continue to be needed. Sotatercept is the first FDA- and EMEA-approved activin signaling inhibitor therapy for PAH, characterizing a new class of pharmacological management that acts by improving the balance between pro- and anti-proliferative signaling to regulate vascular cell proliferation underlying PAH. This drug induces cellular changes that are associated with thinner vessel walls, partial reversal of right ventricular remodeling, and improved hemodynamics. Sotatercept is used in combination with other PAH medicines in patients with moderate or marked limitations of physical activity (corresponding to WHO functional class II or III respectively). Patients and caregivers must be trained by a health care provider or nurse on how to mix, prepare, measure and inject sotatercept. Given the previous facts, the main objectives of this presentation will be to clarify the pharmacological properties of sotatercept, including pharmacodynamics, pharmacokinetics, indications, and



Miroslav Radenković, MD, MS, PhD, a full-time professor at the Department of Pharmacology, Clinical Pharmacology and Toxicology, graduated from the Faculty of Medicine – University of Belgrade (FMUB) in 1995, and from 1996 Miroslav Radenković has been working at the FMUB. A Master of Science in pharmacology, board certified in Clinical Pharmacology, PhD from Medical Sciences, and a sub-specialization degree in Clinical Pharmacology - Pharmacotherapy in 1999, 2000, 2004, and 2016 respectively, from the FMUB, as well as Bioethics MS in 2021 from the Clarkson University, NYC, USA. Since 2002, Dr. Miroslav Radenković officially participated in several scientific projects supported by the Ministry of Science – Serbia; the Austrian Science Fund; COST Action; as well as the NIH Fogarty International Center Project, USA. Dr. Radenković is a member of the Ethics Board of Serbia and a Chair Department.

contraindications for use, adverse drug reactions, as well as the most important drug interactions. This will provide a better understanding of this orphan and the first-in-class biological drug for PAH, consequently helping clinicians in its suitable prescribing and adequate clinical use.

Biography

N. Kumar

Dept. of Cardiology, HeartbeatsZ Academy, Great Yarmouth, United Kingdom

Pulse field ablation for atrial fibrillation complications: What do we know yet

Atrial Fibrillation (AF) is the most common cardiac arrhythmia, affecting millions worldwide. While catheter ablation is a well-established treatment for AF, it carries risks of complications such as Pulmonary Vein Stenosis (PVS) and esophageal injury.

Pulse Field Ablation (PFA) is a novel ablation technique that utilizes short, high-voltage pulses to create lesions in the myocardium without thermal damage. This theoretical advantage may translate into a lower risk of complications compared to conventional ablation techniques.

The current state of knowledge regarding PFA for AF complications is ambiguous which necessitates for discussion about the mechanisms of action, technical aspects, and clinical outcomes of PFA. Several complications as oesophageal injury, coronary artery spasm, hemolysis related acute renal failure, transient phrenic nerve paralysis and many more. We will also explore the potential benefits and limitations of PFA compared to other ablation techniques.

The presentation will be based on a comprehensive review of the existing literature on PFA for AF complications. We will present the latest clinical data, including results from ongoing trials, and discuss the future directions of research in this field.

This presentation will be of interest to cardiologists, electrophysiologists, and other healthcare professionals involved in the management of AF and its complications. It will provide a comprehensive overview of the current evidence and future directions for PFA in this setting.

Keywords: Atrial Fibrillation, Pulse Field Ablation, Pulmonary Vein Stenosis, Esophageal Injury, Complications, Catheter Ablation.



Dr. N. Kumar is a European Board Certified Cardiac Electrophysiologist (ECES) with a doctorate thesis in cardiology on Atrial fibrillation ablation from Maastricht University Medical Centre, Netherlands (ranked among the top 50 clinical universities worldwide). Dr. N. Kumar is a program chair for an International cardiology program and a visiting professor- Cardiology for EDU (Germany, Malta). The primary interests of Dr. N. Kumar are atrial fibrillation, arrhythmia management, Heart failure, and cardiovascular economics. Dr. N. Kumar has extensive experience with ablation procedures and complex device implantation with >70 publications (and >600 citations) in reputed journals, including JACC and Heart rhythm journal. Dr. N. Kumar has more than a decade of experience in Cardiology. Awards: Erasmus Scholarship 2015. NRI of the Year award" 2018 for academics by Times group. American Heart Rhythm Society scholarship 2018 for advanced heart arrhythmia training at St Luke's medical center, USA. American College of Cardiology 2019 travel award. EHRA 2021-Educational Grant.

India UK Achievers Honours 2023 at UK parliament for contribution to Science, Education, and Innovation. Dr. N. Kumar was trained earlier at some of the best hospitals across the USA, UK, Germany, and the Netherlands. Dr. N. Kumar is a fellow of 1] Royal College of Physicians, Edinburg UK (FRCP). 2] European Society of Cardiology (FESC). 3] American College of Cardiology (FACC). 4] Indian College of Cardiodiabetology and Metabolic Disease (FICCMD). Two papers by Dr. N. Kumar, including the "ATSCA study," have been referenced in the 2017 expert consensus on atrial fibrillation ablation guidelines. Dr. N. Kumar has also worked as a reviewer for journals such as The Lancet and a global consultant for various studies such as Discovery, Painfree-sst, and Improve SCA. Dr. N. Kumar graduated in Health economics and cardiovascular management from the London School of Economics. Dr. N. Kumar is also responsible for approving the "world's first catheter for epicardial ventricular tachycardia ablation" from TGA for Abbott (USA).

Biography

**Sergey Suchkov^{1,2*}, R. Holland Cheng⁸,
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Personalized and Precision Medicine (PPM) as a unique healthcare model through bio design-driven translational applications and cardiology-related marketing to secure the human healthcare and biosafety

A new systems approach to diseased states and wellness result in a new branch in the healthcare services, namely, *Personalized and Precision Medicine (PPM)*. To achieve the implementation of PPM concept, it is necessary to create a fundamentally new strategy based upon the recognition of biomarkers and thus biomarker-driven targeting to secure the grand future of drug discovery.

It would be extremely useful to integrate data harvesting from different databanks for further treatment to thus



Sergey Suchkov was born in the City of Astrakhan, Russia, in a family of dynasty medical doctors. In 1980, Sergey Suchkov graduated from Astrakhan State Medical University and awarded with MD. In 1985, Sergey Suchkov maintained the PhD as a PhD student of Sechenov University and Institute of Medical Enzymology. In 2001, Sergey Suchkov maintained his Doctor Degree at the National Institute of Immunology, Russia. From 1989 through 1995, Sergey Suchkov was a Head of the Lab of Clinical Immunology, Helmholtz Eye Research Institute in Moscow. From 1995 through 2004-a Chair of the Dept for Clinical Immunology, Moscow Clinical Research Institute (MONIKI). At present, Dr. Sergey Suchkov, MD, PhD, is: Professor of the Russian University of Medicine, Moscow, Russia. Dr. Suchkov is a member of the: The Russian Academy of Natural Sciences, Moscow, Russia; New York Academy of Sciences, USA; American Chemical Society (ACS), USA; American Heart Association (AHA), USA; European Association for Medical Education (AMEE), Dundee, UK; EPMA (European Association for Predictive, Preventive and Personalized Medicine), Brussels, EU.

provide more tailored measures for the patients and pre-illness persons-at-risk, resulting in improved patient outcomes, reduced adverse events, and more cost-effective use of the latest health care resources including diagnostic (*companion ones*), preventive and therapeutic (*targeted* molecular and cellular) etc.

In this context, the need for innovative heart disease treatments has become critical since the diseases remain the world's biggest killer. The pace of innovation in Personalized & Precision Cardiology (PPC) is becoming fast.

A major paradigm shift has become the increasing recognition of the potential therapeutic utility of the targeted drugs for cardiovascular diseases, whilst opening up new avenues of therapeutic implications. As PPM continues to drive targeted immunotherapy development and cardiac biomarker discovery for healthcare services, cardiologists could indeed see their own PPM-based renaissance very soon.

In cardiovascular disease globally, PPM may result in much-needed innovation in the field and has the potential to eventually change the way we treat heart diseases altogether. So, PPC is thus poised to be-come the next great revolution in the daily practice, as well as in the maintenance of cardiovascular health and the prevention and cure of cardiovascular disease. PPM disrupts standard practice and draws from clinical testing, electronic health records, multi-OMICS profiling, big datasets, and novel analytical methods, to create a person-specific phenotype to identify an optimal intervention with minimal risk.

The promise of PPM and PPC is well understood but the newest tools will be needed for describing the cardiovascular health status of individuals and populations, including transdisciplinary 'OMICS' data, exposome-related datasets and social determinants of health, behaviours and motivations, patient-generated data, and the array of data in EMRs. Innovative cardiology and cardiac nanosurgery currently lead the way in PPC advancements, and health care under PPM-related armamentarium will become a more integrated, dynamic system, in which patients are becoming central stakeholders who contribute data and participate actively in shared decision-making. The proposal would ideally be suited for practitioners who already incorporate integrative approaches in their practice, as well as more traditional clinicians who want to learn more about PPM and PPC as a growing area.

PPM will need to demonstrate that phenotype-based person-specific interventions are superior to the current standard of care and, ultimately, have a population effect by moving the mean on the disease spectrum towards health. Education, affordability, and public acceptance of the strategy all play key roles in its ultimate implementation. This is the reason for developing global scientific, clinical, social, and educational projects in the area of PPM-based and PPC-guided clinical cardiology to elicit the con-tent of the new branch. In short, PPM will transform the way the physicians practice and will shake up the entire pharmaceutical value chain.

Biography

Dr. Syed Raza MD, MRCP, FRCP, CCT, FESC, FACC, FESCVI

Consultant Cardiologist, Awali Hospital,
Bahrain

Lipoprotein (a): The hidden cardiovascular risk

Lipoprotein (a) [Lp(a)] is a unique lipoprotein particle composed of an LDL-like particle linked to a glycoprotein called apolipoprotein(a). Elevated levels of Lp(a) have been identified as an independent risk factor for cardiovascular disease, including atherosclerosis, heart attack, and stroke. The structure and function of Lp(a) suggest that it plays a role in the pathogenesis of cardiovascular disease by promoting inflammation, thrombosis, and atherosclerosis. However, the exact mechanisms by which Lp(a) contributes to cardiovascular risk are not fully understood. Genetic factors play a significant role in determining Lp(a) levels in individuals, and current treatment options for lowering Lp(a) levels remain limited. Further research is needed to elucidate the precise role of Lp(a) in cardiovascular disease and to develop effective strategies for managing elevated Lp(a) levels to reduce cardiovascular risk.



Dr. Syed Raza graduated from Aligarh University in India in 1993. After completing postgraduate degree in Medicine from the same university, moved to the UK for higher specialist studies. Dr. Syed Raza successfully completed MRCP and CCT and later also awarded Fellow of the Royal College of Physicians of Edinburgh (FRCP). Dr. Syed Raza was awarded Professor John Goodwin prize for outstanding performance in Diploma Cardiology exam at Hammersmith Hospital, University of London in 2001. Dr. Raza is Fellow of American College of Cardiology and American College of Chest Physicians. Also Fellow of European Society

of Cardiology and Fellow of European Society of Cardiovascular Imaging. Dr. Raza is also on the committee of Acute Cardiovascular Care. Heart Failure and Cardiovascular Imaging (European Society of Cardiology). Currently working as Consultant Cardiologist and Head of the department of Medicine at Awali Hospital, Bahrain. Dr. Raza is a board member of the Hospital Executive Committee. Also chairs the Resuscitation committee and Privileging and Credentialing Committee. Prior to this worked as consultant in Cardiology at Mid Cheshire Hospitals, NHS trust, United Kingdom. Dr. Raza is the regional educational coordinator for RCP Edinburgh and examiner for MRCP exam for the Royal College of Physicians of UK. Has participated in some well known trials and research. Dr. Syed Raza has to credit numerous publications and he has presented his scientific work in different parts of the world and peer review author for some well respected International journals. Dr. Raza is permanent Review author for abstracts for European Society of Cardiology Annual Congress also the editorial board of International Journal of Endovascular Treatment and Innovative Techniques. Dr. Raza is a teaching faculty member for Healthcare Management and Leadership at Westford University, Dubai campus. And certified American Board in Medical Quality. Dr. Raza frequently organises a number of seminars, webinars, symposia and workshop on various healthcare, quality and safety topics. Dr. Raza has led the first awareness campaign in Heart Failure in the Middle East in 2017. Dr. Syed Raza is chairman of BAPCO's health promotion unit and special interests includes Cardiovascular Imaging, Heart Failure and Acute Cardiovascular Care. Dr. Syed Raza is founder and chairman of Raza Foundations which works for educating and increasing awareness on various health related topics amongst the general public as well as provide free healthcare services to poor as one of the charity initiatives.

Biography

Thomas Bernd Dschietzig

Relaxera GmbH & Co. KG, Bensheim & Berlin,
Germany

The development of human relaxin-2 for heart failure with preserved ejection fraction, HFpEF

Human Relaxin-2 (hRlx-2) is a hormone of pregnancy that has engendered a great deal of interest as a therapy for various cardiovascular and inflammatory diseases, among them Acute Heart Failure and Systemic Scleroderma. Here, we propose and summarize data showing that Rlx-2 represents a strong drug candidate for the treatment of HFpEF, a hitherto unmet medical need, and outline the upcoming pharmacological development.

In particular, the talk summarizes data obtained in the rat ZSF1 HFpEF model. ZSF1 rats (9-weeks old, either sex) were placed on a high fat diet for 11 weeks and serial echocardiograms were used to track the development and severity of Diastolic Dysfunction (DD). Once severe HFpEF was established rats received daily sc. injections of hRlx-2 (100 µg/kg) or vehicle. After 2 weeks, hearts were perfused with a voltage-sensitive dye (RH237) and

a Ca²⁺ indicator (Rhod-2/AM) to optically map action potentials and Ca²⁺ transients to analyze the arrhythmia phenotype. Tissue sections for immunofluorescence and westerns were used to measure changes in fibrosis (collagen 1), Nav1.5, connexin 43, Wnt1 and β-catenin. Rlx-2 suppressed atrial and ventricular arrhythmia and significantly increased Cx43 expression, Nav1.5 and β-catenin at intercalated disks. It reduced collagen deposition back to normal levels and increased myocardial Wnt1 expression. In summary, the ZSF1 diabetic rat on a high-fat diet recapitulates human HFpEF with lung edema, fibrosis, and DD as well as atrial and ventricular arrhythmias. Rlx-2 injections reversed DD, left atrial enlargement, and fibrosis. Rlx-2 also abolished the pro-arrhythmic phenotype by increasing conduction velocity, Cx43, and Nav1.5. Thus, daily subQ hRlx-2 injections were highly effective as a therapy for HFpEF. The peptide is being developed for clinical trials in HFpEF.



Thomas Bernd Dschietzig studied Medicine at Charité, the Medical Faculty of the Humboldt University of Berlin, Germany, and is a specialist of Internal Medicine focused on cardiovascular research. Thomas Bernd's lab and clinical work have been focused on the study of physiology and pathophysiology of the naturally occurring peptide hormone human relaxin-2. Thomas Bernd Dschietzig is Chief Executive Officer and co-founder of Relaxera, a pharma company dedicated to develop synthetic human relaxin-2 for chronic clinical use in cardiovascular disease, especially in Heart Failure with Preserved Ejection Fraction, HFpEF.

Biography

Thomas J. Webster

School of Health Sciences and Biomedical Engineering, Hebei University of Technology, Tianjin, China; School of Engineering, Saveetha University, Chennai, India; co-founder of over a dozen companies, Mansfield, Bioincubator, Mansfield, MA USA

Cardiovascular nanomedicine: Stopping strokes, unclogging arteries, and restoring heart function

Nanomedicine, or the use of materials with at least one dimension less than 100 nm, has led to improved disease prevention, diagnosis, and treatment. This talk will cover recent advances in the use of nanomaterials to prevent, diagnose, and treat cardiovascular diseases. Specifically, nanomaterials (such as carbon nanotubes) when coupled with stem cells have been shown to reverse stroke damage and return motor function to stroke-induced rats. Moreover, vascular stents with nanotextures have been shown to improve endothelialization to reduce thrombus formation and reclogging of arteries. Further, new cardiac patches with conductive nanomaterials (such as graphene) have been shown to regenerate cardiomyocyte functions (such as growth and contractile function) to regenerate healthy cardiac tissue in the area of heart tissue damage due to heart attacks. In this manner, this talk will highlight how cardiovascular nanomedicine is being used to significantly improve numerous cardiovascular diseases in unprecedented ways.



Thomas J. Webster's (H index: 126; Google Scholar) degrees are in chemical engineering from the University of Pittsburgh (B.S., 1995; USA) and in biomedical engineering from RPI (Ph.D., 2000; USA). Thomas J. Webster has served as a professor at Purdue (2000-2005), Brown (2005-2012), and Northeastern (2012-2021; serving as Chemical Engineering Department Chair from 2012-2019) Universities and has formed over a dozen companies who have numerous FDA approved medical products currently improving human health in over 30,000 patients. Thomas J. Webster technology is also being used in commercial products to improve sustainability and renewable energy. Currently helping those companies and serves as a professor at Brown University, Saveetha University, Hebei University of Technology, UFPI, and others. Dr. Webster has

numerous awards including: 2020, World Top 2% Scientist by Citations (PLOS); 2020, SCOPUS Highly Cited Research (Top 1% Materials Science and Mixed Fields); 2021, Clarivate Top 0.1% Most Influential Researchers (Pharmacology and Toxicology); 2022, Best Materials Science Scientist by Citations (Research.com); and is a fellow of over 8 societies. Prof. Webster is a former President of the U.S. Society for Biomaterials and has over 1,350 publications to his credit with over 55,000 citations. Thomas J. Webster was recently nominated for the Nobel Prize in Chemistry. Also recently formed a fund to support Nigerian student research opportunities in the U.S.

Biography

Yong-Xiao Wang

Department of Molecular and Cellular Physiology, Albany Medical College, Albany, New York, USA

Innovative mechanisms, consequences and therapeutics for pulmonary hypertension

Currently, Pulmonary Hypertension (PH) is a widespread lung disease, molecular mechanisms remain poorly understood, and medications are neither always effective nor specific.

In a series of our present studies, we have explored the potential important role of ryanodine receptor 2 (RyR2) Ca^{2+} release channel in the development of PH. Moreover, we have also investigated whether its inhibitory blockers and biologics may block this devastating disease.

Our findings reveal that Rieske Iron-Sulfur Protein (RISP) serves as a primary molecule to increase mitochondrial Reactive Oxygen Species (ROS) generation, disassociate FKBP12.6 from RyR2, enhance the channel activity, and then induces calcium release from the sarcoplasmic reticulum (a major intracellular Ca^{2+} store), hereby causing PASMC proliferation, PA vasoconstriction and remodeling, and ultimately PH. Moreover, the increased RISP-dependent ROS can also cause DNA damage to activate Ataxia Telangiectasia Mutated (ATM) kinase, phosphorylate Checkpoint kinases 2 (Chk2), further PASMC proliferation, and further PA remodeling and PH.

Taken together, our results demonstrate that RISP, FKBP12.6, RyR2, ATM, and Chk2 work as a successive signaling pathway to mediate PH. Furthermore, specific inhibitory blockers and biologics of the molecules as described here may become innovative and effective treatment options for PH and other relevant vascular diseases.



Dr. Yong-Xiao Wang has been a Full Professor in Department of Molecular and Cellular Physiology at Albany Medical College since 2006. Dr. Wang obtained his MD, PhD, and postdoctoral training at various week-recognized universities. And has made many important findings using complementary molecular, biochemical, physiological, and genetic approaches at the molecular, organelle, cellular, tissue and organism levels in animals and human samples, had numerous publications in Nature Commun (Impact Factor: 14.290), Antioxid Redox Signal (8.209), Proc Natl Acad Sci USA (9.432), Nature (34.480), Circ Res (9.214), and other highly peer-reviewed journals and academic books, and served as the editorial board member and/or section editor as well as the executive committee member and/or subcommittee chair for professional societies.

3rd Edition of International

Heart Congress

JUNE
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ORAL PRESENTATIONS



Agustin Joison^{1*}, Raul Barcudi²

¹Chemical and Medical Department. Cordoba Catholic University/ Assistant Professor, Cordoba, Cordoba, Argentina

²Coronary Unit, Reina Fabiola University Clinic/Professor, Cordoba, Cordoba, Argentina

Residual cardiovascular risk indices I and II in type II diabetics and hypertensive patients

Introduction: Diseases such as Acute Coronary Syndromes (ACS), with signs such as difficulty breathing when exerting effort or chest pain at rest, are frequently expressed in patients with Coronary Artery Diseases (CAD). The percentage of patients with myocardial ischemia without flow-limiting epicardial stenosis varies from <20% luminal stenosis to $\leq 50\%$, or even absence of severe >70% stenosis in any coronary artery. The objective of this work is to evaluate two indices of residual cardiovascular risk I and II (RCVR I and II) with risk of coronary obstruction in asymptomatic patients by measuring laboratory analytes associated with inflammatory vascular processes.

Methods: A descriptive, randomized, retrospective and observational study was carried out in a sample of patients of both sexes who attended consultation at the Reina Fabiola university clinic, Córdoba, Argentina during the period 2015-2017. The variables analyzed were the cardiac markers cTnI, Systolic Blood Pressure (SBP), Heart Rate (HR), age, Body Mass Index (BMI), blood glucose (mg%), %glycosylated Hemoglobin (%HbA1c). With these analytes, the residual cardiovascular risk indices I and II (RCVR I and II) were constructed.

Results: Regarding RCVR I, it was observed that control patients have a negative mean -0.556 ± 0.16 , which according to their interpretation is not at risk of suffering from atherogenic lesions; opposite aspect to that observed in diabetic patients (0.345 ± 2.03) and hypertensive patients (0.306 ± 2.10). In the case of hypertensive patients, when contrasted with controls referred to RCVR I, patient 3 (-2.71) has a better prognosis than number 6 (5.62). Slight positive linear correlation test was found in hypertensive patients between RCVR I and cTnI values ($r: 0.5723$) $p=0.0054$, and negative correlation between RCVR II and cTnI ($r: -0.7239$) $p=0.0001$.

Conclusion: The incorporation, analysis and evaluation of biochemical parameters such as blood glucose, cTnI, HbA1c together with clinical values such as blood pressure, body mass index are important for the assessment of the greater or lesser residual cardiovascular risk and consequently the probability of developing vascular lesions among them. Coronary arteries early in asymptomatic patients.

Biography

Dr. Joison studied biochemistry at Cordoba National, Argentina and graduated as Clinical Biochemistry in 1980. Dr. Joison then joined the research group of Health Science Faculty, Cordoba Catholic University as assistant and researcher. Dr. Joison received PhD degree in 2017 at Cordoba National University and has published more than 25 research articles in different Journals.



Asma Syed MD, FACC, FHRS

Director, Electrophysiology Laboratory Brookdale Hospital Medical Center

Gender disparities in heart disease, diagnosis and management

Hear disease is the leading cause of death worldwide affecting both men and women, however gender disparities are present in the diagnosis, treatment and even clinical outcomes. Clinical trials in cardiovascular disease have predominantly focused on male patients. Women with heart disease tend to present with atypical symptoms including nausea, epigastric discomfort, fatigue etc., instead of the heavy chest pain described by men. These symptoms are underplayed by family, friends and patients themselves. Women have socioeconomic barriers and caregiver burdens which also leads to delays in presentation. These factors lead to a delay in seeking medical attention and a delay in diagnosing. Studies have demonstrated that women are also less likely to get timely interventions.

Hormonal influences also play a role in disease progression. Women have a sharp increase in heart disease after menopause. The caregiving responsibilities, depression and level of stress is also higher in women with heart disease demonstrating a psychosocial relationship. Within the healthcare system, gender biases also exist which may minimize women's atypical symptoms and lead to lack of interventions offered.

These disparities are due to a combination of biological, social and systemic factors. A multifaceted approach is needed to address these differences. Some changes needed are increasing female representation in clinical trials, development of sex specific diagnostic criteria & treatments along with educating clinicians on gender differences. Public health campaigns to provide education for women to recognize and seek treatment in a timely fashion is imperative along with raising awareness for the risk of heart disease especially after menopause.

Recognition and addressing these differences are needed to provide effective cardiovascular outcomes for all patients irrespective of gender.

Biography

Dr. Syed obtained her bachelors degree in Biochemistry from Stony Brook University in 1994 followed by MD degree from Ross University in 1999. Dr. Syed completed Internal medicine residency in 2002 from Brookdale Hospital Medical Center in Brooklyn, New York followed by Cardiology and Electrophysiology Fellowships at SUNY Downstate Medical Center in Brooklyn, New York. Dr. Syed is presently the Director of the Electrophysiology Laboratory at Brookdale Hospital Medical Center and is a Clinical Associate Professor of Medicine at SUNY Downstate Medical Center.



Claudio Soto^{1*}, Yashutosh Joshi^{1,2}, Paul Jansz¹, Peter MacDonald^{1,2}

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A decade of DCD heart transplantation utilising normothermic machine perfusion in Australia

The use of Donation after Circulatory Death (DCD) donors for heart transplantation represents a relatively new entry into efforts made to help expand the donor pool. The use of Normothermic Machine Perfusion (NMP) through the Transmedics Organ Care System Heart (OCS Heart) allows for DCD hearts to be assessed for viability prior to transplantation. Our unit was the first to use NMP following procurement of a DCD heart by a Direct Procurement Protocol (DPP) in 2014. In this abstract we describe our experience with DCD heart transplantation over the last decade.

All DCD heart transplants that have occurred in our institution since 2014 have been included in this study. Donors met inclusion criteria if they were <55yrs of age with a normal transthoracic echocardiogram and no significant prior cardiac history. Antemortem heparin was given to the donor at the discretion of the donor hospital and local policy. We use the Sydney DPP which has been previously described (Joshi et al. Transplantation. 2022).

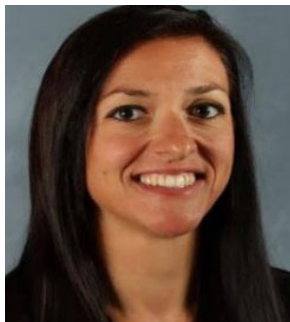
Once the donor heart is procured, and mounted onto the OCS heart, it is reperfused in a Langendorff fashion and assessed for viability. The donor heart is deemed viable if during the period of NMP point of care sampling reveals a down-trending and extracting (venous lactate<arteriallactate)lactateprofile. Therightventricleisalsovisuallyassessedforcontractility. If the donor heart is deemed viable (typically following 90-120 mins of NMP) transplantation can then proceed. February 2020 represents the last major change to our retrieval protocol and serves as a cut-off point when comparing eras of DCD heart transplantation (referred to as pre and post-Feb 2020).

Since 2014, of the 148 DCD donors that have progressed to circulatory arrest with subsequent mounting of the donor heart on the OCS, 116 were ultimately transplanted (78% overall transplant rate). There has been a significant increase in the transplantation rates of DCD donor hearts following reperfusion on the OCS post Feb-2020 when compared to pre-Feb 2020 (85% vs 68% respectively, $p=0.04$). Overall, 32/148 hearts were declined, 17 of which were declined due to poor recovery on the OCS. There is no significant difference in short or long term survival between recipients of DCD and BD heart transplants in our institution during this time period (5yr survival: 81% vs 78%; 10yr survival: 69% vs 64% respectively, $p=0.6$). There was no significant difference in the incidence of ISHLT (International Society of Heart and Lung Transplantation) grade severe primary graft dysfunction (sPGD) over the last

decade when comparing recipients of DCD vs BD donors (14% vs 18% respectively, $p=0.2$). In comparing eras of DCD heart transplantation, there was a significantly reduced incidence of sPGD in DCD heart transplants performed post-Feb 2020 compared to pre-Feb 2020 (24% vs 6% respectively, $p=0.007$). An asystolic warm ischaemic time of >15mins remains significantly associated with an increased risk of sPGD in DCD heart transplantation ($p=0.0048$). Over the last 10yrs, DCD heart transplantation has accounted for 30% of all heart transplant activity.

Biography

Claudio graduated from the University of Sydney in 1994 with an MSc, and is a Senior Perfusionist at St Vincent's Hospital Sydney, being there for the last 26 years. Being the Senior DCD Heart Retrieval and MCS Perfusionist, plays a valuable role in the retrieval, preservation and assessment of DCD hearts and had a significant role in the world's first DCD heart transplantation in 2014. Claudio is also involved with hypothermic machine perfusion, as well as ECMO and eCPELLA retrieval programs both domestic and internationally and is heavily involved in ongoing heart preservation research with the units Large Animal Laboratory.



Desislava Doycheva^{1,2*}, Ryan Bax², Antoine Sakr¹, John Zhang², Anthony Hilliard¹

¹Department of Cardiology, School of Medicine, Loma Linda University, Loma Linda, California, USA

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Harnessing heart health: Unveiling the dual benefits of SGLT2 inhibitors in rat hearts

Cardiovascular diseases, particularly Myocardial Infarction (MI), remain a major global health challenge. Recent studies have highlighted the cardioprotective potential of Sodium-Glucose Co-Transporter 2 (SGLT2) inhibitors, originally developed for managing glycemia in diabetes. Emerging evidence suggests that these inhibitors may modulate inflammation following MI.

In this study, male wistar rats were subjected to ischemia-reperfusion-induced myocardial injury and treated with SGLT2 inhibitors. Cardiac function, infarct size, histology, and inflammatory markers were analyzed to assess the impact of SGLT2 inhibitors on post-MI inflammation.

Preliminary findings revealed a significant reduction in myocardial inflammatory markers and infarct size in SGLT2 inhibitor-treated rats, indicating anti-inflammatory effects. These results imply that beyond their established glycemic benefits, SGLT2 inhibitors may exert protective effects by modulating the inflammatory response in the context of MI.

We hypothesize that these protective effects are mediated through interference with Thioredoxin-Interacting Protein (TXNIP), a key regulator of redox balance, implicated in NLRP3 inflammasome activation.

This study aims to explore the molecular mechanisms by which SGLT2 inhibitors modulate TXNIP and downstream inflammatory pathways, providing insight into their potential therapeutic role in reducing post-MI inflammation.

Biography

Dr. Doycheva graduated with PhD in Physiology from Loma Linda University in 2018 and then joined the research group of Dr. Zhang at the center for neuroscience research in Loma Linda University. After a year of being an instructor at Dr. Zhang's lab, Dr. Doycheva was promoted to an Assistant Research Professor with over 40 publications. While her expertise in stroke research has provided invaluable insights into the intricacies of cerebrovascular events, Dr. Doycheva has science branched into cardiovascular research to gain a more comprehensive understanding of vascular health.



Esther M. Weiss MS, APN-CNS, CEPS, FHRS

Cardiac Arrhythmia Services, Ltd., Elgin, Illinois, USA

Advocate Sherman Hospital, Elgin, Illinois, USA

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3. Management of special anti-arrhythmic drugs.
4. Managing patient care, collaborating with other physicians and specialists in the day-to-day clinical management of arrhythmia patients.
5. Teaching patients about their condition, procedures, primary prevention, giving emotional and psychological support.
6. Providing education and training for other caregivers of arrhythmia patients.

Biography

Esther Weiss has an extensive work history in the area of Critical Care and Electrophysiology. Esther Weiss received a nursing degree from Northwestern University in Chicago and an MS degree from Northern Illinois University. At Sherman Hospital, Esther Weiss developed the Electrophysiology Arrhythmia Center and created all the policies, procedures, and processes for the department. Esther Weiss is an active member of the Heart Rhythm Society, a member of the Test Writing Committee for the EP Certification exam, a member of the Board of Directors for the IBHRE (Int'l Board of Heart Rhythm Examiners), and a co-author of the Heart Rhythm Society Expert Consensus Statement on Electrophysiology Laboratory Standards: Process, Protocols, Equipment, Personnel, and Safety.



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Double-chambered left ventricle - From clinical to basic

Introduction: Double-Chambered Left Ventricle (DCLV) is a particularly rare congenital cardiovascular malformation that is difficult to diagnose. It is characterized by the subdivision of the left ventricle into two chambers by an abnormal septum or muscle band. Compared to Double-Chambered Right Ventricle (DCRV), DCLV is an extremely rare anomaly with few cases having been previously reported.

Material and Methods: From January 2012 to November 2023, 12 patients, including five males and seven females, ranging from 2 to 41 years, were diagnosed with DCLV using echocardiography in our hospital. The clinical manifestations included cyanosis, cough, fatigue, palpitations, and dyspnea. Physical examination revealed tachypnea, decreased breath sounds, and wheezing. Cardiac examination revealed enlarged heart borders, decreased heart sounds, and grade 3/6 systolic ejection murmurs in the left 3–4th intercostal space.

Results: All patients underwent chest radiography, electrocardiogram, and echocardiography; nine patients underwent Cardiac Magnetic Resonance Imaging (CMRI). Among the patients in this group, one died of multiple organ failure 1 year after the diagnosis. The remainder was followed up at our hospital. Familial aggregation was observed in these cases. Five individuals in the family were diagnosed with DCLV. We discovered a novel rare variant of MYH7, the causative gene for several heart diseases, in the patients from this family.

Conclusions: DCLV is a rare cardiac disease in which the LV is divided into two chambers. Echocardiography plays an important role in the diagnosis of DCLV and in differentiating it from other diseases. This is the first report of familial DCLV and identification of MYH7 as its genetic cause. Additionally, our results provide useful information of MYH7-associated diseases.

Keywords: Double-Chambered Left Ventricle, Echocardiography, Diagnosis, Genetics

Biography

Dr. Wang studied Pediatrics at the Capital Medical University, Beijing, China and graduated in 1989. She then joined Heart Center, Beijing Children's Hospital, Capital Medical University, National Center for Children's Health. She received her MD degree in 2008 at the same university. She has been to New York-Presbyterian Morgan Stanley Children's Hospital, Columbia University Medical Center as a visiting scholar. She had ten years of pediatric cardiac clinical experience. And as a major professional area, she has done echocardiography for twenty-five years. She had published more than 30 articles on the professional journal of China and SCI.



Dr. Geeta Deswal*, Ajmer Singh Grewal, Kumar Guarve

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Nature's pharmacy: Phytoconstituents for cardiovascular wellness

Cardiovascular Diseases (CVDs) are the leading cause of morbidity and mortality worldwide. Modern pharmacology offers a variety of treatments, yet the rising prevalence of CVDs necessitates alternative and complementary strategies. Nature, with its vast repository of medicinal plants, presents phytoconstituents as promising therapeutic agents for cardiovascular wellness.

Phytoconstituents, the bioactive compounds derived from plants, possess significant pharmacological properties that contribute to heart health. These compounds, including flavonoids, alkaloids, saponins, tannins, and terpenoids, exhibit diverse mechanisms such as antioxidant, anti-inflammatory, antihypertensive, and lipid-lowering effects, making them crucial in preventing and managing CVDs.

Flavonoids: Protectors of the Heart: Flavonoids, abundant in fruits, vegetables, and beverages like tea and wine, are potent antioxidants. They scavenge free radicals, reduce oxidative stress, and enhance endothelial function. Quercetin, a flavonoid found in apples and onions, has demonstrated antihypertensive properties by modulating nitric oxide availability and improving vascular relaxation. Similarly, catechins in green tea reduce LDL cholesterol and improve lipid profiles, reducing the risk of atherosclerosis.

Alkaloids: Multifunctional Agents: Alkaloids like berberine, derived from berberis species, exhibit multiple cardiovascular benefits. Berberine reduces LDL cholesterol and improves insulin sensitivity, addressing key metabolic risk factors for CVDs. Additionally, it enhances mitochondrial function, which is essential for cardiac health.

Saponins: Lipid-Lowering Wonders: Saponins, found in legumes, oats, and herbs like tribulus terrestris, bind to cholesterol in the gut, reducing its absorption. This action lowers serum cholesterol levels, preventing plaque formation in arteries and reducing the risk of coronary artery disease.

Tannins and Polyphenols: Anti-Inflammatory Powerhouses: Tannins and polyphenols, present in grapes, berries, and nuts, inhibit inflammatory pathways that contribute to atherosclerosis. Resveratrol, a polyphenol in red wine, has been extensively studied for its ability to protect the heart by reducing inflammation, oxidative stress, and platelet aggregation.

Terpenoids: Natural Vasodilators: Terpenoids, like ginsenosides from panax ginseng, exhibit vasodilatory effects by relaxing blood vessels and improving circulation. These compounds also regulate blood pressure and have anti-thrombotic properties.

Future Perspectives: While the benefits of phytoconstituents in cardiovascular wellness are promising, challenges like bioavailability, standardization, and clinical validation remain. Advances in nanotechnology and formulation science offer solutions to enhance the therapeutic efficacy of these natural compounds.

In conclusion, phytoconstituents serve as nature's pharmacy, offering a holistic approach to cardiovascular wellness. Integrating these compounds into daily diets or developing them as nutraceuticals and therapeutics holds immense potential in combating the global burden of CVDs.

Biography

Dr. Geeta Deswal is a dynamic academic professional with over 12 years of extensive experience in pharmaceutical education and research. Currently serving as a Professor and Head of the Department of Pharmacognosy at Guru Gobind Singh College of Pharmacy, Yamuna Nagar, Dr. Geeta coordinates the Internal Quality Assurance Cell (IQAC) and the National Board of Accreditation (NBA). Dr. Deswal holds a Ph.D. in Pharmaceutical Sciences from MM University, Mullana, with a research focus on the quality audit of marketed herbal formulations and phytochemical screening of medicinal plants. Dr. Geeta's impressive publication record includes 40 research papers, 10 books, and 15 book chapters, along with 6 patents (2 granted), demonstrating commitment to advancing pharmaceutical sciences. Dr. Geeta has successfully secured several grants from DBT and MSME and received multiple awards, including the "Best Counsellor Award" from the Youth Red Cross Society and the "Young Achiever Award" at Pharma Vision 2K25. Dr. Deswal is a life member of the Association of Pharmaceutical Teachers in India and a registered pharmacist with the Haryana State Pharmacy Council. Also, the dedication to continuous learning is evident through the organization of over 30 Faculty Development Programs (FDPs), conferences, seminars, and workshops.



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Free fatty acids: Independent predictors of long-term adverse cardiovascular outcomes in heart failure patients

Background: The association between plasma Free Fatty Acid (FFA) and the outcomes in the Heart Failure (HF) patients remains unclear.

Methods: A cohort study among HF patients was performed. Plasma FFA was analyzed as both a continuous and a categorical variable (grouped by tertiles) to assess its association with composite Cardiovascular (CV) death and HF Hospitalization (CV death & HHP), CV death alone, and All-Cause Mortality (ACM) using Cox regression models. Subgroup analyses of HF patients with preserved Ejection Fraction (HFpEF) and mildly reduced/reduced ejection fraction (HFmrEF/HFrEF) were performed. This work also assessed the effectiveness of combining FFA and NT-pro BNP biomarkers for risk stratification by calculating the concordance index (C-index).

Results: Among the 4,109 HF patients, FFA levels exceeding 0.4-0.42 mmol/L were associated with increased risks of the three outcomes. Patients in the highest FFA tertile faced greater risks than those in the lowest tertile. Adjusted hazard ratios were 1.32 (95% CI: 1.11-1.58) for CV death & HHP, 1.45 (95% CI: 1.16-1.82) for CV death, and 1.39 (95% CI: 1.15-1.68) for ACM, with a maximum follow-up of 8 years (median: 25 months). Subgroup analyses revealed that elevated FFA levels consistently predicted worse outcomes in both HFmrEF/HFrEF and HFpEF patients. The C-index for predicting outcomes was significantly greater when NT-pro BNP and FFA were combined than when NT-pro BNP was used alone ($P < 0.01$).

Conclusion: Increased plasma FFA concentrations were independently associated with greater risks of CV death & HHP, CV death, and ACM among HF patients, irrespective of the ejection fraction. The combination of FFA and NT-pro BNP biomarkers significantly improved risk stratification in HF patients.

Biography

Dr. Liao is a PhD candidate in cardiology at the Chinese Academy of Medical Sciences and Peking Union Medical College, under the supervision of Prof. Jian Zhang. Dr. Liao's research primarily focuses on the prediction of risk factors and the treatment of heart failure. Dr. Liao has authored or co-authored 11 SCI papers, serving as the first or co-first author.



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Cardiovascular outcomes in initial and sustained orthostatic hypotension: A retrospective cohort study

Classic Orthostatic Hypotension (OH) is a common geriatric disorder and is associated with cardiovascular risk. There are so far too few data available on the prognostic importance of initial OH and the comparison with sustained OH. This study investigated cardiovascular outcomes in initial and sustained OH in a cohort of patients aged ≥ 50 years. The study included 435 participants; 94 (21.6%) patients had initial (43, 45.7%) or sustained (51, 54.3%) OH, diagnosed by an active orthostatic test using the CNAP™ monitor. The median follow-up period was 65 months (inter-quartile range, 30 to 71). 159 (36.6%) of the patients had the primary outcome a composite of major adverse cardiovascular events (MACE) and death from any cause], among which 142 (32.6%) had MACE, and 21 (4.8%) died. Analysis through Kaplan–Meier and further Cox regression models for multivariable adjustment both showed that, initial OH increased both the risk of the primary outcome and MACE (HR 2.20, 95% CI 1.39 to 3.50; HR 2.38, 95%CI 1.48 to 3.84), while didn't increase the mortality. In contrast, sustained OH increased both the risk of the primary outcome and MACE (HR 1.77, 95% CI 1.17 to 2.69; HR 1.71, 95% CI 1.09 to 2.70), as well as the mortality (HR 3.32, 95% CI 1.29 to 8.50). In conclusion, the preliminary exploration of this relative small-sample study indicates that, OH, no matter initial or sustained OH, increased the cardiovascular risk in patients aged ≥ 50 years, while only sustained OH increased the risk of mortality.

Biography

Dr. Geng studied Clinical Medicine at Peking University Health Science Center and received her MD degree in 2014. She currently serves as a young physician for the American Heart Association and as a director of the Chinese Hypertension League. She has participated in and led numerous scientific research projects. She has published many research articles in SCI (E) journals and participated in the compilation of multiple books.



Iris Panagiota Efthymiou

University of Greenwich, United Kingdom

Heart-to-heart: Transforming cardiac care through communication

Effective communication is at the heart of quality patient care, especially in cardiology, where complex medical decisions can significantly impact patient outcomes. This speech addresses the critical role of communication between cardiologists and patients in enhancing cardiac care. It explores how empathetic dialogue and clear information exchange empower patients to better understand their conditions, adhere to treatment plans, and participate in shared decision-making. By bridging the gap between medical expertise and patient experiences, cardiologists can not only improve clinical outcomes but also foster trust, reduce anxiety, and ultimately transform the journey toward heart health. The discussion will highlight practical strategies, innovative tools, and evidence-based approaches to strengthen communication in cardiology for more patient-centred care.

Biography

Dr. Iris-Panagiota Efthymiou, has a PhD in Behavioral Health Economics from the University of Piraeus, Greece. And, a Lecturer at the University of Greenwich and the University East London, Board Member of HAPSc, As. Researcher at the Laboratory of Health Economics and Management (LabHEM) at the University of Piraeus. Dr. Iris has more than 50 publications (research articles in scientific journals, chapters, and 12 books).



Physiotherapist João Rafael Rocha da Silva*, Personal Trainer Mariana de Oliveira

Connect Life Rehabilitation and Performance, Ubatuba, São Paulo, Brazil

Factors that impact adherence to physical exercise in individuals with chronic pain

Chronic pain is defined as persistent pain for more than three months and can be classified as primary with no known etiology, or secondary pertinent to a pathological process and specific clinical diagnosis.

In previous studies, we observed that it directly impacts cardiac rehabilitation, and adherence to physical exercise, significantly increasing disability and mortality in the population.

We also observed that individuals with chronic pain present patterns of changes in motor control and kinesiophobia, with chronic low back pain and knee osteoarthritis being the most frequent causes of disability, directly impacting adherence to physical exercise.

Despite the high relevance of studies that address the topic of motor control, its understanding in clinical practice still appears to be unclear.

Experienced authors recently published a model for evaluating and optimizing motor control for individuals with chronic pain, demonstrating a variety of neurofunctional and musculoskeletal changes, which should be considered when inserting rehabilitation protocols for these individuals.

The literature is abundant in studies that seek to understand which are the best exercises for treating pain, but inconsistent as to which modality is best, which is why we seek to understand and first define what are the factors that impact these individuals' adherence to exercise.

Biography

Pt. João Rafael Rocha da Silva has been a clinical physiotherapist for over 15 years, with a postgraduate degree in rehabilitation applied to sport from the Department of Orthopedics and Traumatology at the Escola Paulista de Medicina CETE- UNIFESP, also having a postgraduate degree in Improvement in assessment and interdisciplinary treatment in Pain at the Hospital das Clínicas of the Faculty of Medicine of the University of São Paulo HC-FMUSP. Pt. João Rafael Rocha da Silva has recently published five studies related to the treatment of Pain, which were presented at more than five international conferences and congresses. Scientific reviewer for international journals.



Ma Ning

Heart Center, Beijing Children's Hospital, Capital Medical University, National Center for Children's Health, Beijing, China

Diagnosis and prognosis of abnormal origin of coronary arteries

Objective: To investigate the diagnostic and prognostic value of echocardiography in patients with Anomalous Origin of The Coronary Arteries (AOCA), and to analyze its diagnostic accuracy and impact on patient outcomes.

Methods: A retrospective analysis was conducted on clinical data from patients diagnosed with AOCA in Beijing Children's Hospital. The study included pediatric patients with a focus on Anomalous Left Coronary Artery from The Pulmonary Artery (ALCAPA) and Anomalous Aortic Origin of a Coronary Artery (AAOCA). Echocardiographic findings, imaging results, treatment modalities, and follow-up outcomes were reviewed.

Results: Echocardiography demonstrated a high diagnostic accuracy for ALCAPA but a relatively low accuracy for AAOCA. ALCAPA patients often presented with left ventricular dysfunction, coronary artery dilation, and abnormal blood flow signals in the pulmonary artery, while AAOCA patients were frequently missed due to nonspecific symptoms. ALCAPA patients had a poor prognosis, often presenting with cardiogenic syncope or heart failure, whereas Anomalous Right Coronary Artery from The Pulmonary Artery (ARCAPA) patients had a relatively better prognosis. After surgical treatment, the Left Ventricular Ejection Fraction (LVEF) in ALCAPA patients significantly improved within 6 months postoperatively. In AAOCA patients, imaging revealed anatomic features associated with coronary artery compression or stenosis leading to myocardial ischemia. Symptoms such as chest pain or syncope during exercise suggested high-risk anatomic features.

Conclusion: Echocardiography is an important screening tool for AOCA, particularly for ALCAPA. However, the diagnosis of AAOCA requires additional imaging modalities to improve accuracy. Early surgical intervention significantly improves prognosis in patients with myocardial ischemia. Cardiogenic syncope or heart failure is more common in ALCAPA patients, and early surgical treatment is recommended.

Biography

Dr. Ma Ning, Ph.D. in Medicine, Chief Physician, Professor, Director of the Department of Cardiac Ultrasound at Beijing Children's Hospital, Capital Medical University. Her research focuses primarily on the ultrasound diagnosis of pediatric cardiovascular diseases and the assessment of cardiovascular function, including the integrated prenatal and postnatal management of congenital heart diseases. She was the first in the country to initiate a pediatric coronary artery ultrasound examination program. In recent years, she has undertaken multiple research projects funded by the National Natural Science Foundation of China, the Beijing Municipal Natural Science Foundation, and the Beijing Municipal Science and Technology Commission. She has published over 50 articles, edited 2 monographs as the chief editor or co-editor, and contributed to 10 other publications.



Maria Borrell

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Neuronal cholesterol homeostasis and lipid receptors

Although the regulation of cholesterol homeostasis in the body has been extensively studied, there is little information on how this regulation takes place in the brain. Cholesterol does not cross the blood-brain barrier; therefore cholesterol metabolism in the brain is independent from that in peripheral tissues. Lipoprotein receptors from the LDL Receptor Family (LRPs) have key roles in lipid particle accumulation in the bloodstream. For example, activation of a specific LRP induces lipid uptake in several cells, tissues and organisms both in vitro and in vivo. However whether LRPs are involved in the regulation of cholesterol levels in the brain is still not known.

To determine the role of lipoprotein receptors in the brain we analyzed the expression of different LRPs and components and targets of their downstream signaling pathways in brains of *Wt* and *Lrp*^{-/-} mice and in a neuroblastoma cell line. Although several LRPs expression are increased in a time dependent and dose dependent manner in lipid loaded neurons, specific LRPs do not participate in lipid uptake as neurons without lipoprotein receptors accumulate intracellular lipids in a similar way as control cells. Because the activation of the canonical WNT signaling pathway induces survival processes we tested whether lipoprotein receptors were involved in apoptotic and/or autophagic processes and found that LRP has both, anti-apoptotic and anti-autophagic functions indicating a role for this receptor in neuronal survival. Furthermore, we show that LRP is indispensable for life as brains of *Lrp*^{-/-} mice show low but quantifiable LRP gene expression. Taken together, our results support a prosurvival role for LRP in brain.

Biography

Dr. Borrell is a senior investigator in the Cardiovascular Program at the Hospital de la Santa Creu i Sant Pau, Barcelona. Prior appointments include a postdoctoral position in the Neurology Department of the Curie Institut, Paris, France studying Huntington's disease. Dr. Borrell leads a project based in the role of different lipoprotein receptors in cholesterol metabolism in the vascular system. The results have been published in different journals including EHJ, BRIC or CVR and lead to the concession of projects financed by both, the government and the industry.



Dr. Muhammad Wasim Sajjad*, Muhammad Zaid Ali, Azam Jan, Saif Ullah, Muhammad Salman Farsi, Muhammad Imran Khan, Nasir Ali, Yasir Aziz

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Comparison of autologous vs non-autologous blood transfusion in patients undergoing coronary artery bypass grafting surgery

Introduction: To compare autologous versus non-autologous transfusion in patients undergoing CABG and its early outcomes. This study seeks to evaluate the impact of different transfusion strategies on key postoperative outcomes, including morbidity and mortality.

Methodology: The observational study on retrospective data was conducted at Tertiary care hospital from January 2022 to December 2023. A total of 140 patients were included. Institutional review board approval was granted and inclusion criteria were met. For statistical analysis, Chi-square & T-test was used. Data was analyzed using SPSS 25. A P-value of <0.05 was considered statistically significant.

Results: In our study, we included 140 patients who underwent isolated CABG, divided equally into two groups: 70 in the autologous group and 70 in the non-autologous group. The autologous group comprised significantly younger patients compared to the homologous group (P 0.01). Additionally, the autologous group had a higher proportion of males, while the homologous group was predominantly female. Regarding co-morbidities, the autologous group had a significantly higher incidence of dyslipidemias (38.6%), whereas the homologous group had a greater prevalence of hypertension (90%). Pre-operatively, the mean hemoglobin levels were significantly higher in the autologous group (15.6 ± 0.83) compared to the homologous group (P 0.001). However, there were no significant differences between the two groups in terms of intraoperative characteristics, including perfusion time, cross-clamp time, the number of IABP insertions, and intraoperative blood transfusions. In terms of outcomes, the homologous group demonstrated worse morbidity, characterized by a significantly higher requirement for post-operative blood transfusions (P 0.01) and prolonged mechanical ventilation hours (P 0.05). However, there were no notable differences between the two groups concerning ICU stay, re-exploration rates, re-intubation rates, or in-hospital mortality. Notably, the autologous group maintained significantly higher post-operative hemoglobin levels on the first, second, and discharge days compared to the homologous group (P 0.001).

Conclusion: Our study demonstrates that autologous transfusion is reasonable to do as it significantly reduces the morbidity by avoiding excessive blood transfusions and has better post-operative hemoglobin levels.

Keywords: Coronary Artery Bypass Grafting (CABG), Autologous, Homologous, Blood Transfusion, Outcomes.

Biography

Dr. Muhammad Wasim Sajjad, completed MBBS from Ayub Medical College, Abbottabad, followed by a two-year General Surgery training at Lady Reading Hospital (LRH), Peshawar. Then, joined Rehman Medical Institute (RMI) for Cardiac Surgery, where successfully completed a three-year residency. Dr. Muhammad Wasim currently, working as a Registrar in Cardiac Surgery at RMI. Dr. Wasim has several published research papers and presented work at various national conferences, reflecting my commitment to advancing the field of cardiac surgery.



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Design of textile biodegradable composite stent having core shell structure

Composite textile stents with core-shell structure have been developed. Biodegradable Polyvinyl Alcohol (PVA) yarns are twisted and then coated with Polycaprolactone/ Polyethylene Glycol (PEG) blends. The coated yarns are weft knitted into braids and then thermally treated to form composite stents with core-shell structure. The morphological, mechanical, and biological characteristics of the formed composite stents are evaluated to determine the effects of PEG concentration. Results show that composite stents acquire the flexibility of PVA yarns and elasticity of weft knits. The presence of PEG positively influences composite stent performance. When the PEG concentration is 30 wt%, composite stents exhibit a compressive strength of 6.15 N and cell viability of 97.32% after a 24 h of culture. The selected materials are biodegradable, and the novel structure meets the requirements of bioresorbable vascular stent, which suggests that the proposed composite stents have good potential for advancement.

Biography

Dr. N. Gokarneshan obtained PhD in Textile Technology from Anna University in 2008. Has a vast academic experience spanning over 30 years and held various positions. Dr. N. Gokarneshan contributions in the field include organizing an international conference, obtaining 3 patents, publishing over 200 articles, presenting papers in many conferences as plenary session, key note and invited speaker. And, has contributed many book chapters for edited books published by reputed publishers such as Wiley, Elsevier, Springer Nature, etc. Also authored 20 books including an international monograph. Dr. N. Gokarneshan is recipient of a number of awards and recognitions for noteworthy contributions in his field. Also a peer reviewer and editorial board member in a number of journals. Dr. N. Gokarneshan has made multidisciplinary contributions in various areas of medicine, engineering, science and technology. Presently holding position as Professor and Head at the Department of Textile Chemistry at SSM College of Engineering, Komarapalayam, Tamil Nadu, India. Areas of interest include Technical textiles and Nano technology in Textiles.



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Nisty Heart Centre, Kalaburagi, Karnataka, India

A rare case of slow flow mimicking acute coronary syndrome

Introduction: The coronary slow flow phenomenon is an important, angiographic entity characterized by delayed progression of the injected contrast medium through the coronary tree. The clinical implications are significant, with over 80% of patients experiencing recurrent chest pain, resulting in considerable impairment in quality of life.

Methodology: A rare case of slow flow mimicking acute coronary syndrome was assessed at our center to understand the clinical presentation and further aspects of the phenomenon.

Results: A 43-year aged man presented to OPD with complaints of chest pain for 3 months associated with shortness of breath, sweating and palpitations occasionally. Symptoms aggravated since a week of presentation to our centre. He was teetotaler and no comorbidities associated. On examination, BP-120/80 mmhg, PR-68/min, RR-18/min, SPO₂-98% RA and temperature-97°F. Systemic examination was normal. ECG was showing normal (sinus rhythm). He was advised TMT further; the stress test was positive for inducible ischemia. He was advised coronary angiogram considering symptoms and the stress test was positive for inducible ischemia. Later the troponin I was done which showed marginally positive (0.3 ng/ml) against reference <0.2 ng/ml was normal. Coronary angiogram showed slow flow of coronary arteries.

Conclusion: The presentation of slow flow may be varied from chest pain, palpitations associated with sweating and other constitutional symptoms. It's necessary to investigate and diagnose promptly to rule the differential diagnosis such as acute coronary syndrome. Prompt and early diagnosis could be beneficial for improving quality of life of an individual and occasionally mimic with acute coronary syndromes.

Biography

Dr. Nidhish Nisty is consultant Physician and Administrator at Nisty Heart Centre, Kalaburagi. Studied MBBS and M.D Internal Medicine at MRMC, Kalaburagi. Dr. Nidhish has secured highest grades at college in Internal Medicine and has been awarded gold medal in MBBS. Also a co-author for many abstracts which were selected at EuroPCR at Paris 2020 during the post-graduation and at IHC Japan 2023 and IHC Paris 2024. Dr. Nidhish has various presented posters in India and has been travelled to 14 countries.



Dr. Nilay Solanki

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Prescribing patterns and risk factor assessment in coronary artery disease patients undergoing angioplasty: A prospective study

Background: Coronary Artery Disease (CAD) results from the obstruction of blood supply to the heart. Angioplasty is a common intervention for managing CAD, supplemented by supportive and preventive therapies. Modifiable risk factors for CAD include hypertension, diabetes, dyslipidemia, obesity, smoking, sedentary lifestyle, and type 2 traits, along with non-modifiable factors like age, gender, and family history. This study aimed to assess the risk factors associated with CAD and evaluate medication prescribing trends in CAD patients.

Methodology: A prospective analysis was conducted on 88 patients undergoing coronary angioplasty. Data on CAD risk factors and patients' medication history were collected and analyzed for prescribing patterns and rationality. Statistical analysis was performed using suitable tools.

Results: The majority of CAD patients were male (80.68%) with a mean age of 59.19 years, and most (39.77%) were aged between 61-70 years. Hypertension and diabetes were the most prevalent conditions at admission. Notably, BMI, stress, lack of exercise, hypertension, diabetes, and a family history of cardiovascular disease were identified as significant CAD risk factors ($p < 0.05$). Commonly prescribed drugs included antiplatelets, antibiotics, antihypertensives, antiulcer medications, antihyperlipidemic, and antidiabetic agents. Drug interactions were detected in 19.31% of cases, with two classified as severe. Everolimus- and sirolimus-coated stents were frequently used.

Conclusion: In conclusion, a history of cardiovascular disease, hypertension, and diabetes emerged as major CAD risk factors. The study also highlighted some irrational prescribing trends. Enhanced patient counseling and care could help mitigate CAD risks and reduce the overall healthcare burden.

Biography

Dr. Nilay Solanki is an Associate Professor at Ramanbhai Patel College of Pharmacy, CHARUSAT, India, with over 17 years of expertise in Pharmaceutical Sciences and Pharmacology. Dr. Nilay research focuses on preclinical and clinical studies related to diabetes, cancer, neurodegeneration, etc. And collaborates with multispecialty hospitals for clinical research and has published over 50 papers in high-impact journals. Dr. Solanki has received numerous awards and has served as a resource person at national and international conferences. Dr. Nilay Solanki is also an editor and reviewer for reputed journals and has completed various consultancy projects.



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Cardiac surgery in patients with low ejection fraction

Objective: To see the outcome of cardiac surgery in patients with low ejection fraction.

Methods: We retrospectively reviewed 2382 cardiac surgery cases from 11.6.17 to 24.3.25. Among them CABG was performed in 2278 (95.63%) patients in this patient's group 148 (6.50%) patients were in low ejection fraction group (20%-30%). In this group 20%-25% ejection fraction was in 46 patients (2.02%) and 26%-30% ejection fraction was in 92 patients (4.04%). Age range was from 33 to 75 years. 1 graft was given to 3 patients (2.03%), 2 graft was given to 37 (25. %) patients, 3 graft was given to 108 (72.97%) patients and 4 graft was given to 20 (13.51%) patients. Endarterectomy was needed in 16 (10.81%) patients. 3 grafts with mitral valve replacement in 2 patients, 1 graft with mitral valve replacement with atrial septal defect closure was done in a patient with 20% ejection fraction, 1 graft was given to a patient with Aortic Valve Replacement. In 3 patients calcified aorta was found where both internal mammary arteries were used.

We operated 23 noncoronary cardiac cases with low ejection fraction. Among them severe aortic stenosis were 8 cases, aortic regurgitation 3 cases, severe mitral stenosis 6 cases, mitral regurgitation 2 cases, atrial septal defect 2 cases, coarctation of aorta with severe aortic regurgitation 1 case, patent ductus arteriosus in 1 case.

Results: Overall ejection fraction improved in CABG cases 10.54%. There was 4 (2.70%) postoperative mortality in 30 days due to respiratory failure, intractable arrhythmia and high fever. Overall mortality in 8 years was 11 (7.43%). In noncoronary cases overall ejection fraction improved 20.25%. Early 30 days mortality was 1 (4.34%) in the patient with severe mitral stenosis who died due to cardiac arrhythmia. Overall mortality in 8 years was 2 (8.6%).

Conclusion: Cardiac surgery in low ejection fraction patients group shows improvement in ejection fraction and gives long term good outcome.

Biography

Dr. Nuruddin Mohammod Zahangir passed MBBS (Bachelor of Medicine and Surgery) from Dhaka Medical College, Dhaka, Bangladesh in 1992. He completed MS (master of Surgery) in Cardiovascular and Thoracic Surgery in 2004. He worked in the field of cardiac surgery for last 20 years. Presently he is working as Senior Consultant of Cardiac Surgery in Green Life Medical College Hospital, Dhaka, Bangladesh. Last year he operated 525 adult cardiac surgery cases. He has 33 publications in cardiac surgery in national and international journals. He presented many papers on cardiac surgery in national and international seminars (India, USA).



Olga G. Goryacheva*, Vladimir G. Zhelobov, Mikhail A. Zubarev, Maria A. Trushnikova

Department of Polyclinic therapy, Perm State Medical university named academician E. A. Wagner, Perm, Russia

Mutual concomitance of pancytopenia and chronic heart failure in patients infected with human immunodeficiency virus

Human Immunodeficiency Virus (HIV) has direct and indirect effects on both bone marrow cells and cardiomyocytes.

The common pathogenetic process unites the formation of pancytopenia and Chronic Heart Failure (CHF) in HIV-infected patients. Pathogenesis of haematological disorders in HIV infection is a complex and multifactorial problem.

It includes the following aspects: Drug-induced disorders of haematopoiesis, bone marrow suppression as a result of infiltration by infectious agents or malignant by infectious agents or malignant cells, as well as HIV-induced changes in the process of haematopoiesis and a number of other factors. In a clinical study involving 240 patients with HIV-infection in the conditions of a multidisciplinary hospital, we have proved that there is a mutual conjugation of the processes of formation of CHF and pancytopenia in patients with HIV-infection. The chance of CVD development in patients with pancytopenia increases 12,3 times. In patients with pancytopenia on the background of Chronic Heart Failure with NT-proBNP level ≥ 300 , 4 pg/ml more often alcohol dependence and ventricular rhythm disturbances were detected more often. At the same time, NT proBNP level was much higher in pancytopenia, as well as the number of patients with severe CHF having NT-proBNP levels ≥ 1500 pg/ml, the latter suggesting that pancytopenia worsens the course of CHF. The concentration of the fibrosis marker TIMP-1 was higher in patients with pancytopenia, increasing simultaneously and equidirectionally with the level of NT-proBNP, which indicates activation of the process.

Biography

Dr. Olga G. Goryacheva studied Medicine at the Perm State Medical University, Russia and graduated as MS in 2002. Then joined the research group of Prof. Mikhail A. Zubarev at the department of internal diseases, Perm State Medical University. Dr. Olga received PhD degree in 2011 at the same institution. After 7 years, obtained the position of an Associate Professor at the internal diseases department and later, since 2023—at the polyclinic therapy department. Dr. Olga G. Goryacheva has published more than 30 research articles in SCI (E) journals.



Roger H. Coletti MD, FACC, FASNC, FSCAI

Interventional Health, PA Lewes, Delaware, USA

Effects of impaired microcirculation in the musculoskeletal system

Throughout the body blood flow is regulated by vascular tone secondary to local or neurologic control. However, in the musculoskeletal system, the effects of muscular contraction can lead to augmentation or restriction of local blood flow. While repetitive muscle contraction increases local blood flow, sustained muscular contraction limits blood flow. It is known from cardiac physiology that coronary blood flow is predominant in diastole as systolic cardiac contraction compresses capillaries to limit blood flow. Research I performed during my cardiology fellowship demonstrated that progressive suppression of contractility with increasing doses of beta blockers will ultimately lead to a reversal of the systolic to diastolic blood flow such that the predominant flow is in systole. Unfortunately, I neglected to publish that finding at that time for unknown reasons. It can be readily understood from that and other work that the degree of muscle contraction determines the degree of blood flow suppression. I have previously presented arguments supporting the ischemic model of chronic muscle spasm. Ischemia is seen as the causative agent keeping the muscle in chronic spasm. The other side of that argument is that prolonged spasm leads to the ischemia completing the vicious cycle of ischemia maintaining chronic spasm. The prolonged ischemia leads to the development of marked spontaneous electrical activity or SEA seen on EMG evaluation that both identifies the muscle in chronic spasm and is the causative agent to maintain the muscle in spasm.

Chronic muscle spasm is not the only site in the musculoskeletal system where impairment of microcirculation has untoward effect. Tendinopathy, formerly always identified as tendinitis, varies in its pathologic findings depending which part of the tendon is biopsied. As it turns out, inflammation is seen at some sites but more consistently is loss of fibers noted in some cases stated to represent hypoxic damage. I had postulated that tendonitis was the result of impairment of the microcirculation of the central aspects of the tendon secondary to the pull of an attached muscle in chronic spasm. Biopsy studies of the mid portion of the achilles tendon in cases of tendinopathy do not show inflammation but findings that would be consistent with ischemic damage. Clinically, treatment of chronic muscle spasm that had resulted in tendinopathy, has a distinct clinical course. Typically, it takes about three days after successful treatment of the chronic muscle spasm for relief of the tendinopathy. This would not be inconsistent with partial tendon recovery with the restitution of central tendon blood flow. Based upon this premise, the protocol for treatment of tendinopathy should initially be a search for an attached muscle in chronic spasm and treatment should begin with attempted resolution of that muscle spasm.

Biography

Roger Howard Coletti, MD, FACC, FASNC, FSCAI graduated from Georgetown University College of Arts and Sciences. Received a Master of Arts in Natural Sciences from Hofstra University. Roger Howard Coletti did one year of bench research on drug metabolism at New York University Medical School. And earned MD from State University of New York at Downstate. Medical internship and residency were performed at Nassau County Medical Center in East Meadow, NY. Roger Howard Coletti completed two years of cardiology fellowship at Columbia Presbyterian Medical Center in New York and one year of Interventional Cardiology fellowship at Westchester County Medical Center.



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Baseline cardiac status in pregnant patients with sickle cell disease

Introduction: Sickle Cell Disease (SCD) is the most common inherited hemoglobinopathy, marked by chronic hemolytic anemia and vaso-occlusion due to a mutation in the β -globin gene. This leads to multi-organ damage and increased risk for cardiopulmonary complications, including Pulmonary Hypertension (PH), a predictor of mortality in 6-11% of patients. Pregnancy adds physiologic stress, potentially worsening cardiac risks in individuals with SCD. Maternal mortality in pregnant patients with both SCD and PH may reach 60%. Despite this, no formal guidelines recommend baseline cardiac evaluation prior to or during pregnancy.

This study aims to address this gap by evaluating the proportion of pregnant individuals with SCD at a single academic institution who undergo echocardiographic screening either before or during pregnancy. The objectives are to (1) assess the frequency of baseline cardiac assessment, and (2) determine the prevalence of abnormal echocardiographic findings.

Methods: We performed a retrospective cohort study (2018-2023) of pregnant patients with SCD receiving both prenatal and postpartum care. Data collected included patient age, history of acute chest syndrome, and echocardiogram reports. Echocardiograms were categorized by timing—more than one year before conception or within one year before/during pregnancy—and by findings (left heart, right heart, or other abnormalities). Pulmonary Artery Systolic Pressure (PASP) values and diagnoses of PH were recorded when available.

Results: Among the 26 patients with Sickle Cell Disease (SCD), 19 (73%) underwent echocardiography either within one year prior to conception (n=11) or during pregnancy (n=8), while 4 (15%) had echocardiograms performed only more than one year before pregnancy, and 3 (12%) had no echocardiographic evaluation. All four patients who had only pre-pregnancy (>1 year) echos demonstrated abnormal findings, with 75% showing left heart abnormalities and 25% showing right heart abnormalities; Two of these lacked Pulmonary Artery Systolic Pressure (PASP) measurements, while the remaining two had elevated $PASP \geq 20$ mmHg. Among the 19 patients who had more recent echos, 5 showed abnormal structural findings, including mitral regurgitation, bi-atrial and bi-ventricular dilation, atrial septal thickening, and other valvular abnormalities. Of those, PASP was not recorded in 8 patients; among the 11 with measurements, 8 (73%) had elevated $PASP \geq 20$ mmHg. Only one patient underwent right heart catheterization. Despite structural abnormalities, all patients had preserved ejection fraction (55-65%) and none met criteria for pulmonary hypertension.

Table 1: Demographics of SCD patients by performance of echocardiogram in relation to conception.

	n	Mean age	Prior history of acute chest syndrome (%)	Abnormal echo findings (%)	Right heart abnormalities (%)	Left heart abnormalities (%)	Other abnormalities (%)	Mean PASP	Pulmonary hypertension (%)
No echo performed	3	25	2 (67)	N/A	N/A	N/A	N/A	N/A	N/A
Echo > 1 year from conception	4	30	3 (75)	4 (100)	1 (25)	3 (75)	0	23.5	0
Baseline echo within 1 year or during pregnancy	19	29	14 (74)	5 (26)	4 (80)	4 (80)	3 (60)	29.9	0

Table 2: Outcomes of SCD patients based on echocardiogram findings

	Mean gestational age at delivery	Mean admissions for sickle cell crises during pregnancy	Blood transfusion received during pregnancy	Hypertensive disorders of pregnancy	Pulmonary or Cardiac event (e.g. AMI, VTE)	Maternal death
No echo performed	39.7	0	0	0	0	0
Echo > 1 year from conception	36.8	1.75	3 (75%)	1 (25%)	0	0
Baseline echo within 1 year or during pregnancy	37.1	2.65	14 (74%)	7 (37%)	2	0

Conclusion: Patients with Sickle Cell Disease (SCD) are at increased risk for cardiovascular complications, which may be exacerbated by the heightened physiological demands of pregnancy. In our cohort, cardiac abnormalities, including elevated PASP, were common in pregnant patients with SCD, yet invasive evaluation was rarely performed. While all patients had preserved ejection fraction and no formal PH diagnosis, underuse of right heart catheterization may have contributed to missed diagnoses. These findings suggest that absent or delayed cardiac screening could lead to undetected cardiovascular risks, increasing the potential for adverse pregnancy outcomes. Standardized preconception cardiac evaluation, including echocardiography and further workup for elevated PASP, should be considered to guide risk stratification and improve maternal health in this high-risk population.

Biography

Dr. Oyenuga earned a Bachelor's degree in Exercise Science from Florida State University in 2014, followed by a master's degree in Medical Sciences from the University of South Florida in 2017. Following graduation, she worked in clinical research in the Department of Gynecologic Oncology. She received her medical degree from the Alabama College of Osteopathic Medicine in 2022. Dr. Oyenuga is currently a third-year Obstetrics and Gynecology resident at the University of Connecticut. Her research focuses on improving maternal and fetal outcomes in patients with sickle cell disease.



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Safety and outcomes of cardiopulmonary resuscitation in patients with left ventricular assist devices

Annually, approximately 2,500–3000 patients in the United States receive Left Ventricular Assist Devices (LVADs), making it increasingly likely that healthcare providers and EMS will encounter cardiac emergencies in this population. Cardiopulmonary Resuscitation (CPR) in LVAD patients remains controversial due to concerns about device dislodgement, bleeding, and uncertain perfusion outcomes. Despite guidelines supporting the use of chest compressions in specific circumstances, clinical evidence remains limited, although documented cases of successful resuscitation using chest compressions exist. Our research seeks to review the existing literature on the use of CPR, including manual chest compressions and automated systems such as the Lund University Cardiopulmonary Assist System (LUCAS), during cardiac arrest with the goal of evaluating hemodynamic and neurological outcomes of patients as well as device functionality post-arrest. Results of this research will serve to provide insights into best practices while identifying gaps in knowledge to guide future research and clinical care.

A systematic search of PubMed, EMBASE, MEDLINE, and Google Scholar identified studies evaluating CPR in adult LVAD patients. Case reports, case series, and retrospective reviews meeting inclusion criteria were analyzed with a total of 37 individual cases included.

The survival rate to hospital discharge (54%) for LVAD patients experiencing cardiac arrest with chest compressions was found to be notably higher than the general population. 55% of LVAD patients who survived cardiac arrest exhibited adequate neurological function upon discharge, consistent with neurological outcome rates in the general population of cardiac arrest survivors. No cases reported LVAD malfunction or dislodgement attributable to CPR, whether manual, LUCAS-assisted, or abdominal-only. Normal LVAD functionality post-cardiac arrest was documented in 34 patients (92%).

This systematic review supports the safety of chest compressions in LVAD patients during cardiac arrest, aligning with current American Heart Association and International Society for Heart and Lung Transplantation guidelines. Survival and neurological outcomes are promising, though limited by small sample size and inconsistent reporting. Further prospective studies are warranted to refine CPR protocols and optimize resuscitation strategies for this unique patient population.

Biography

Ryan Slauchenhaupt studied Biological Sciences at Dartmouth College, USA and graduated with a BA in 2021. Then, Ryan began medical school at the University of Cincinnati College of Medicine, USA in 2022.



Samir Rafla

Alexandria University, Faculty of Medicine, Cardiology Department, Egypt

Predictors of sudden death in congenital arrhythmogenic syndromes

Genetic heart diseases are common causes of Sudden Cardiac Death (SCD) in the young and are typically divided into inherited cardiomyopathies and primary electrical heart diseases. Cardiomyopathies associated with the risk of SCD include Hypertrophic Cardiomyopathy (HCM) and Arrhythmogenic Cardiomyopathy (ACM). The latter includes Arrhythmogenic Right Ventricular Cardiomyopathy (ARVC). Primary electrical diseases more commonly seen in clinical practice include Brugada Syndrome (BrS) and Long QT Syndrome (LQTS). Risk stratification of SCD is a central component of the management of patients with these genetic heart diseases. Numerous risk factors have been identified, and risk prediction models have been developed to estimate the absolute risk of sustained arrhythmias and SCD to support clinicians and patients in decision-making regarding prophylactic Implantable Cardioverter-Defibrillators (ICDs). This lecture provides a practical review of the current literature on risk stratification in ARVC and other ACMs, HCM, BrS, and LQTS, and summarizes current recommendations for ICD use.

Biography

Professor Samir Rafla graduated from Alexandria University in June 1970. He was resident in the cardiology department then assistant lecturer then lecturer in June 1982. Spent 10 months research fellow in Cleveland clinic Ohio; in the research institute with Late Prof. R. Tarazi and in the electrophysiology department with Prof. James Maloney. Became professor of cardiology in June 1994. Then head of the cardiology department from 1/8/2004 till 30/8/2007. He was appointed in the National council for promotion of professors in cardiology and critical care starting from December 2004 for four years then extended another 4 years as assessor. He is editor in the Egyptian Heart Journal and Heart Mirror Journal. He is Fellow in the American College of Cardiology, Fellow in the European Society of Cardiology, member in EHRA (European Heart Rhythm association), and member in European Association for Echocardiography and Imaging. Member in the steering committee of the Egyptian Cardiac Arrhythmia Association (ECRA). His main areas of interest are in electrophysiology and pacemakers, also in Echocardiography. He published over twenty abstracts and papers outside Egypt and has presented over 300 lectures/chairmanships at national and international meetings. He organized summer meetings of the ECRA group every year starting 1998, at first alone then with Professor Mostafa Nawar. Also was co organizer of the international CardioAlex conference in the years 2005 to 2007



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Antibodies with functionality as a new generation of translational tools designed to monitor autoimmune myocarditis at clinical and subclinical stages

Catalytic Abs (CatAbs) are multivalent Immunoglobulins (Igs) with a capacity to hydrolyze the Antigenic (Ag) substrate. In this sense, proteolytic Abs (Ab-proteases) represent Abs to provide proteolytic effects. Abs against Cardiac Myosin (CM) with proteolytic activity exhibiting target-ed cleavage of CM molecule are of great value to monitor stages of autoimmune inflammation in patients with Autoimmune Myocarditis (AIM) and persons-at-risk.

AIM is just one of the chronic organ-specific autoimmune diseases resulting in a destruction of cardiac tissue by different tools, including highly aggressive and destructive autoAbs. Some of these autoAbs may also have a functional role in patients, as suggested by in vitro data as well as by preliminary clinical observations, though further work is in progress to clarify this important issue. And along with canonical Abs, some of the families proven to occur are Abs possessing with catalytic (proteolytic) activity (CatAbs or abzymes) and thus to belong to Abs with a feature of functionality! Such Ab-proteases have been found in a series of autoimmune disorders, in-cluding multiple sclerosis, autoimmune thyroiditis, etc.

The unique clinical case is a family of Ab-proteases detectable in AIM to cleave CM. Of great interest is the evolution of Ab-associated proteolytic activity at different stages of the disease progression. The activity of Ab-proteases was registered at the subclinical stages 4-12 months prior to the clinical illness. The activity of the Ab-proteases revealed significant correlation with scales of autoaggression and the disability of the patients with AIM as well. So, the activity of Ab-proteases and its dynamics tested would confirm a high subclinical and predictive value of the tools as applicable for monitoring protocols.

So, further studies on Ab-mediated CM degradation and other targeted Ab-mediated proteolysis may provide biomarkers of newer generations to monitor and to treat AIM patients at clinical stages and to prevent the disorder at subclinical stages in persons-at-risks to secure the efficacy of regenerative manipulations and for assessing the disease progression and predicting disability of the AIM patients and persons-at-risks.

Biography

Sergey Suchkov was born in the City of Astrakhan, Russia, in a family of dynasty medical doctors. In 1980, Sergey Suchkov graduated from Astrakhan State Medical University and awarded with MD. In 1985, Sergey Suchkov maintained the PhD as a PhD student of Sechenov University and Institute of Medical Enzymology. In 2001, Sergey Suchkov maintained his Doctor Degree at the National Institute of Immunology, Russia. From 1989 through 1995, Sergey Suchkov was a Head of the Lab of Clinical Immunology, Helmholtz Eye Research Institute in Moscow. From 1995 through 2004-a Chair of the Dept for Clinical Immunology, Moscow Clinical Research Institute (MONIKI). At pre-sent, Dr. Sergey Suchkov, MD, PhD, is: Professor of the Russian University of Medicine, Moscow, Russia. Dr. Suchkov is a member of the: The Russian Academy of Natural Sciences, Moscow, Russia; New York Academy of Sciences, USA; American Chemical Society (ACS), USA; American Heart Association (AHA), USA; European Association for Medical Education (AMEE), Dundee, UK; EPMA (European Association for Predictive, Preventive and Personalized Medicine), Brussels, EU.



Dr. T. Rajini Samuel M.D

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7 stepwise approach in ECG interpretation using cardiac vector theory

Introduction: Electrocardiogram (ECG) interpretation plays an immense clinical role for the diagnosis of coronary heart disease. But its interpretation remains a challenging task for junior medical staffs. Einthoven applied vectors to discuss the cardiac electrical activity even before a century but he never gave a detailed explanation for the same. Many medical scientists attempted to solve this problem but unable to identify that vector and unable to give a detailed explanation using vector physics principle. Cardiac vector theory and its clinical utility for ECG interpretation was proposed and described in detail by Rajini Samuel (current author) in the previous research articles.

Objectives:

1. To discuss the derivation and application of cardiac vector theory
2. To develop a 7 stepwise approach in ECG interpretation using cardiac vector theory to understand and interpret most of the common cardiac conditions.

Methods: The voltage recorded by the unipolar and bipolar limb lead electrodes are the vertices of an electrical equilateral triangle with heart at the center of the electric field which it generates. The right arm, left arm and left leg are the extensions of its electrical field. The equilateral triangle can be converted into a circle. The deviation of cardiac vector and representation of resultant cardiac wave vector in the form of circles are applied using the vector physics principle. A stepwise approach in ECG interpretation using cardiac vector concept was formulated.

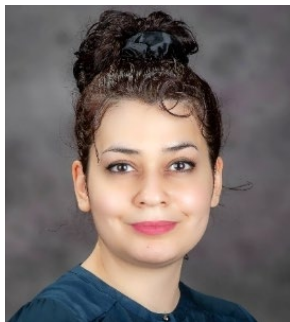
Results: Each cardiac wave (P, QRS, T) can be represented in the form of circles. Cardiac circles were constructed using MATLAB software using the well-known relationship between bipolar and unipolar limb leads. The cardiac vector theory helps to clearly analyse and correlate the changes in different ECG leads. The changes in the resultant cardiac vector in various clinical conditions were applied to interpret the ECG findings.

Conclusion: Cardiac vector theory serves as an efficient teaching tool for the understanding and interpretation of ECG interpretation. It may help the junior medical staffs to overcome the arduous task of pattern memorization method. Coronary heart disease continues to remain as a major global burden. These 7 stepwise approaches in ECG interpretation using vector concepts may help in interpreting the ECG findings efficiently, easily and quickly resulting in saving innumerable heart patients.

Keywords: Stepwise Approach, ECG Interpretation, Cardiac Vector Theory.

Biography

Dr. T Rajini Samuel did MBBS (2004 -2010) in Chengalpattu Government Medical College, Tamil Nadu, India. Worked in Venkateshwara Hospitals, Chennai for two years to complete ECG research project. Dr. Samuel had proposed cardiac vector theory and developed a Novel approach using vector concepts to understand and interpret abnormal ECG findings. Did M.D Biochemistry (2012-2015) in Sree Balaji Medical College and Hospitals, Chennai. And, then focused on research on Arterial Blood Gas (ABG) interpretation. Dr. T Rajini Samuel is presently working as the Professor of Biochemistry in Shri Sathya Sai Medical College and Research Institute, Chennai. He had developed a novel pH based ABG interpretation method, constructed a novel four quadrant graphical tool for ABG interpretation and proposed a novel approach to identify and understand hidden and mixed acid base disorders. Dr. T Rajini had derived novel equations of motion for understanding and interpretation of the Ventilator Graphics. And had published 48 research articles, 3 books and one chapter. Also *received* High Flyers Global Achievers Award 2022-The Best Medical Science Researcher, Atmanirbhar Bharath Award 2022 and Indian Achievers Award 2021 for Excellence in Innovation awarded by the Indian Achievers Forum.



Tahmineh Azizi

Department of Mechanical Engineering, Florida State University, Tallahassee, FL, USA

Unraveling cardiovascular dynamics: Kinetic modeling using heart function as an input variable in physiological systems

Kinetic modeling is an essential method in understanding the dynamic interactions of biological systems, particularly in the context of cardiovascular physiology. This study delves into the application of kinetic modeling to elucidate the heart's function as a critical input variable in metabolic and regulatory processes. By integrating cardiovascular parameters—such as heart rate, cardiac output, and stroke volume—into a comprehensive kinetic framework, we investigate the heart's role in maintaining homeostasis and its implications for systemic health. Utilizing experimental data and advanced modeling techniques, we present a novel approach that captures the intricate relationships between heart dynamics and metabolic pathways. Our findings reveal that kinetic models, when driven by real-time heart data, offer significant insights into the physiological responses to various stimuli, including exercise and pharmacological interventions. Furthermore, we demonstrate the potential of these models in clinical applications, such as predicting heart disease progression and guiding therapeutic strategies. This research underscores the importance of the heart as a central element in kinetic modeling and highlights its potential to enhance our understanding of complex biological systems and improve patient outcomes.

Biography

Tahmineh Azizi is a highly innovative and accomplished researcher with extensive understanding and more than eight years' experience of presentations, development of novel models and tools, and computational analysis to quantitatively bridge the gap between in-vitro experiments and in-vivo endpoints. Tahmineh Azizi's research has been directed towards areas including mathematical biology, dynamical systems theory, computational analysis, mathematical modeling, statistical modeling, Neuroscience, epidemiological models, topological data analysis, fractional calculus and fractal geometry, multiscale modeling.



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National Amosov's Institute of Cardiovascular Surgery, Kiev, Ukraine

Mechanical valve for isolated mitral stenoses complicated massive thromboses of left atrium: Is it necessary?

Objective: To analyzed main problems in surgery of Mitral Valve Diseases (MVD) complicated by Left Atrium's Massive Thromboses (LAMT) (thromboses more than 1/3 of left atrium's volume).

Materials and Methods: 336 adult patients (pts) with MVD complicated LAMT were consecutive operated from 01.01.1984 till 01.01.2020 yy in Institute. Predominant genesis of MVD was rheumatism. Mitral stenoses was marked in all pts and all of them were in IV NYHA class. There was male 147 (43,7%) and females 189 (56,3%). The average age was $59,2 \pm 5,2$ yy. Preoperative thromboembolic episodes were in 59 (17,6%) pts. Calcification of MV was in 197 (58,6%) pts. Previous closed mitral commissurotomy was occurred in 35 (10,3%) pts. The following procedures were performed: MVR (n=294) including plastic procedure on TV by De Vega (n=35); open mitral commissurotomy (OMC) (n=42) including plastic procedure on TV (n=7). Only mechanical valves were used. All operations were performed with CPB, moderate hypothermia, ante-retrograde crystalloid cardioplegia (Custadiol). All pts was divided on 2 groups; group A (n=162) maternal thrombotic basement was removal together with all thrombotic masses out of LA, group B (n=174) maternal thrombotic basement wasn't removal. There were used bileaflet prosthesis (Saint Jude Medical, Carbomedics, On-X, ATS) (n=140); monodisc (n=98), Star-Edwards (ball) (n=38), Amosov's model (hemiball) (n=18). Absence of applying donor blood product during all postoperative period was 19,5%.

Results: The Hospital Mortality (HM) at the period (1994-2014 yy) was 4,5% (n=9/198) for MVR and 0% (n=0/29) for OMC. The reasons of deaths were: Heart failure (n=4), brain damage (thrombemboli) (only group B) (n=3), MOF (n=1), bleeding (n=1 group A). Traumatic rupture of LA's wall during radical removing of maternal thrombotic basement as specific complication was marked in 2,5% (n=4/162) pts. At all period of experience thromboembolic events were marked: Group A-1,8% (n=3/162) (lethal=0), remote period-3,6% (n=5/140) (lethal-1,4%), group B-5,8% (n=10/174) (lethal-3,4%), remote period-13,3% (n=19/142) (lethal-9,2%) ($p < 0,05$). At all period of experience thromboembolic events were marked: MVR in 4, 1% (n=12/294), (lethal-1,0%), remote period-8,9% (n=22/245) (lethal-5,7%) and during OMC 2, 4% (n=1/42), (lethal-0), remote period-5,4% (n=2/37) (lethal-2,7%) ($p < 0,05$). 282 (95,5% alive) pts was followed-up at the remote period. At all period of experience thromboembolic events were marked for bileaflet prosthesis: Saint Jude-1,5% (lethal=0,7%),

remote period-3,6% (lethal-0,9%), Carbomedics-4,3% (lethal-2,7%), remote period-6,5% (lethal-2,2%), On-X-2,4% (lethal=2,3%), remote period-4,2% (lethal-0), group ATS (n=32 pts)-6,2% (lethal=3,1%), remote period-9,3% (lethal-6,3%) ($p<0,05$).

Conclusion: Thromboembolic events at postoperative period is specific complicated factor for LAMT. Maternal thrombotic basement must be removed with all thrombotic masses in all pts. Mechanical valve is independent risk-factor at postoperative period except model Saint Jude.

Biography

Valery Boukarim is a M. D researcher of the surgical department for the treatment of acquired heart defects of the National Institute of Cardiovascular Surgery named after M. M. Amosov.

**Dr. Vikram Jitendra FRCS(Edin), FRCS (CTh)**

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Left ventricular rupture following mitral valve replacement

Left Ventricular (LV) Rupture after Mitral Valve Replacement is a serious complication and carries a very high mortality. Fortunately it is not common but nevertheless it can happen without any warning and catch the surgeon off guard. Various manoeuvres are available to prevent this dreadful complication, but despite all measures it still sadly continues to happen. Prevention is the best option here and it is pertinent that all the precautions are strictly followed to ensure that this complication is avoided at all costs. There are several important factors which are responsible for this horrible complication and it helps if those factors are meticulously avoided during the operation. It is very important that trying to control the bleeding of LV rupture on a beating heart is a recipe for further disaster and results in a situation which is unredeemable. I would like to discuss the measures available to the cardiac surgeon to first avoid this complication and also the proven methods to deal with it intraoperatively. It is important that everyone understands the seriousness of this fatal complication and ensure that all the necessary steps are followed to prevent its occurrence.

Biography

Mr. Vikram Jitendra is a specialty doctor in cardiothoracic surgery at Aberdeen Royal infirmary. He is an experienced cardiothoracic surgeon and has spent over 20 years in this field. He has trained in India and in the United Kingdom and is a qualified cardiothoracic surgeon from the United Kingdom. His main interests are coronary bypass surgery, valve repair and replacement surgeries.



Dr. Vivek Vaibhav^{1*}, Dr. Naman Khurana²

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Paravertebral block with liposomal bupivacaine for enhanced recovery in open thoracotomy: A case report

A 77-year-old Female patient underwent an open thoracotomy for lung B/L breast cancer. Preoperative PVB was performed at the T5-T7 levels, using a combination of liposomal bupivacaine and standard bupivacaine for both intraoperative anesthesia and postoperative pain relief. Postoperatively, the patient reported significantly lower pain scores than expected, with improved respiratory function and early mobilization. Opioid consumption was markedly reduced, and the patient required minimal additional analgesia.

Results: The application of liposomal bupivacaine in the PVB provided extended pain relief following thoracotomy, leading to enhanced postoperative outcomes. The patient experienced improved pain control, reduced opioid use, and earlier discharge, suggesting the effectiveness of this approach for facilitating recovery in thoracic surgery patients.

Conclusion: This case report highlights the potential benefits of combining PVB with liposomal bupivacaine for postoperative analgesia and enhanced recovery in open thoracotomy. Further studies are needed to evaluate the broader applicability and effectiveness of this technique in larger patient populations.

Biography

Dr. Vivek Vaibhav Professor and Head at RAMA Medical College Hospital and Research Institute, Hapur-Uttar Pradesh, INDIA and graduated as MD in Anesthesia and Critical care. He then joined the Senior Residency from SAFDURJUNG MEDICAL COLLEGE (VMMC-NEW DELHI). He has worked with various organisations and hospital. Currently he is serving as a Professor and Head of Department at Rama Medical College. He has various Publications and Articles posted at both National and International Level.



Dr. Yasser Mohammed Hassanain Elsayed

Critical Care Medicine, Egyptian Ministry of Health (MOH), Egypt

Sinusoidal atrial fibrillation (Yasser's Fibrillation) and partial SAN function in COVID-19 pneumonia: A new cardiovascular discovery change in atrial fibrillation directory-case series

Introduction: Atrial Fibrillation (AF) is one of the most common and probable serious arrhythmia and a hallmark of an increasing risk of pathological thrombus formation. Interestingly, Normal Sinus Rhythm (NSR) is the standard rhythm in a normal person. The Sino-Atrial Node (SAN) is the heart's pacemaker and generator of the normal electrical conduction system of the heart which allows for the generating of electrical impulses. In AF, the normal regular electrical impulses generated by the sinoatrial node are overwhelmed by disorganized electrical waves, usually originating from the roots of the pulmonary veins. These disorganized waves conduct intermittently through the Atrioventricular Node (AVN) leading to irregular activation of the ventricles that generate the heartbeat.

Cases Presentation: Four different cases were described. 1. An elderly female patient presented to the ICU with metastatic complicated Mantle cell lymphoma, COVID-19 pneumonia, and irregular heart rate. 2. A senile male patient presented to the Intensive Care Unit (ICU) with an aortic aneurysm, COVID-19 pneumonia, consumptive thrombocytopenia, lung fibrosis, and irregular heart rate. 3. A middle-aged female presented to the ICU with Chronic Renal Failure (CRF) on regular hemodialysis, Liver Cell Failure (LCF), pseudo orange abdominal cellulitis, valvular heart replacement, and irregular heart rate. 4. An elderly female patient presented with cardiomyopathy, global cardiomegaly, irregular heart rate, diabetes, pseudo-orange abdominal cellulitis, liver cirrhosis, and COVID-19 pneumonia.

Method of Study and Patients: A retrospective-observational four-case report series study was conducted in Kafr El-Bateekh Central Hospital starting on January 21, 2023, and ending on June 24, 2024, on COVID-19 pneumonia and atrial fibrillations.

Conclusion: Sinusoidal atrial fibrillations (Yasser's fibrillation) or mixed AF are a new cardiovascular discovery. The partial sino-atrial nodal function has an essential role in the presence of Sinusoidal atrial fibrillations (Yasser's fibrillation) or mixed AF and its interpretation. Sinusoidal atrial fibrillations (Yasser's fibrillation) or mixed AF may be balanced between AF and normal sinus rhythm. The percentages of normal sinus beats to AF beats in the cases of Sinusoidal atrial fibrillations (Yasser's fibrillation) may be a guide for approximate healthy or sick part of the sinoatrial node. Widening the research for the Sinusoidal atrial fibrillations (Yasser's fibrillation) or mixed AF will be recommended.

Biography

Dr. Yasser Mohammed Hassanain Elsayed; a scientist, critical care physician, cardiologist, and independent researcher at Egyptian Ministry of Health. Publicized articles; (140). Innovations (14); (3) "Signs", (4) "Phenomena", (1) "Modification", (1) "Maneuver", (1) "Method", (1) "Test", (2) "Syndrome", and (1) Yasser's Fibrillation. Speaker (International conferences); (27). Reviewer; (258) articles for (87) Journals. Honorable editor; (272) Journals. International Conferences OCM; (10). Instructor; (10) official and (100) non-official. COVID-19 publicized articles; (46). Prizes nomination; Breakthrough Prize, Einstein Prize, Abdul Hameed Showman Award for Arab Researchers, and ESICM Awards. Excellence certificate (more than 134).



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Automated assessment of atrial septal defects using deep learning

Aim: Atrial Septal Defect (ASD) is a typical cardiac defect in the atrial septum, which accounts for around 10% of Congenital Heart Disease (CHD). The early diagnosis and treatment of ASD are crucial to avoid serious complications. Conventional pre-treatment assessment methods to measure critical scales of ASD is Transthoracic Echocardiogram (TTE). But in light of the challenges faced by the current Chinese pediatric healthcare system, including generally unmet demand and uneven development, a significant number of inadequately trained pediatricians working in pediatrics at primary hospitals. Thus, we aimed to develop an automated and interpretable assistant for TTE-based assessment of ASD using Deep Learning (DL).

Methods: We created a novel Deep Keypoint Stadiometry (DKS) model designed to precisely localize the keypoints, representing the endpoints of ASDs, followed by absolute distance measurement with scale information. Clinical decision rules were applied to derive closure plans and determine the size of the ASD occluder for transcatheter closure. We retrospectively collected a dataset of 3,474 2D and Doppler TTE scans from 579 patients across two clinical centers.

Results: The DKS model demonstrated a high accuracy of closure classification (0.9425 ± 0.0052) in within-center evaluations. Consistent results were obtained in cross-center cases and using the quadratic weighted kappa as an evaluation metric. The fine-grained keypoint labels provided explicit supervision for network training. Clinicians can intervene and make edits at various stages of the automated process.

Conclusions: A transparent AI-based multi-view echocardiogram analysis system is proposed to suggest transcatheter or surgical closure. Our DKS model provides interpretable and accurate AI-assisted suggestions. In the future, similar studies using deep learning algorithms shall be developed for size-sensitive treatments. By identifying the explicit clinical practice guidelines, our deep keypoint stadiometry algorithms were able to automatically propose the therapeutic plan, effectively reducing the workload of the clinicians.

Biography

Dr. Zhang Xin graduated from Capital Medical University with a master's degree in pediatrics cardiovascular and a doctor's degree in cardiovascular imaging. She worked in the Beijing Children's Hospital, Capital Medical University, National Center for Children's Health. She served as the deputy director of the cardiac ultrasound department of the heart center, obtained the position of chief physician, associate professor. She has published more than 20 papers in SCI and national core journals, charged over 5 projects of the National Natural Science Foundation of China, Natural Science Foundation of Beijing and other funds.

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POSTER PRESENTATIONS



Badr Elwy¹ MBBS; Abdul-Rahman Elhassan^{2*} MBBS; Jibril Khan¹ MBBS; Saeed Akram³ MD; Mohammed Hussain³ MD; Maher Bazarbashi³ MD, FCCP

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Constrictive pericarditis following lung transplantation: A rare cardiovascular complication in idiopathic pulmonary fibrosis

Constrictive pericarditis is an uncommon but serious complication of lung transplantation, marked by pericardial fibrosis and impaired diastolic filling. It can lead to significant morbidity if not recognized and treated early. This case highlights a rare instance of constrictive pericarditis in a patient with Idiopathic Pulmonary Fibrosis (IPF) following bilateral lung transplantation.

A 55-year-old male with Idiopathic Pulmonary Fibrosis (IPF) underwent an uneventful bilateral lung transplantation. Postoperative recovery was smooth, with the patient receiving standard immunosuppressive therapy, including tacrolimus, mycophenolate mofetil, and prednisone.

Four months post-transplant, the patient began experiencing recurrent bilateral pleural effusions of transudative etiology. Initial management included pleural fluid drainage on two occasions, diuresis, and subsequent discharge. Echocardiographic assessments during this period showed normal cardiac function with no evidence of myocardial weakness, stiffness, or heart failure. Despite treatment, the effusions recurred alongside pedal edema, but right heart failure was not evident.

Repeat pleural fluid analysis confirmed transudative effusion, and echocardiography remained unremarkable. Given the persistent symptoms, the patient was discussed in a multidisciplinary meeting, leading to a recommendation for right heart catheterization. Hemodynamic studies revealed equalization of pressures, indicative of constrictive pericarditis. Cardiac MRI further supported this diagnosis, identifying significant pericardial thickening.

The patient was initiated on colchicine (BID dosing initially, later reduced to daily) and diuretics, which provided temporary symptomatic relief. However, over time, the patient experienced worsening shortness of breath, increasing pedal edema, and a decline in Pulmonary Function Tests (PFTs). Investigations ruled out lung transplant rejection or infectious complications.

Due to failure of medical therapy, the patient was referred for surgical pericardiectomy. The procedure was performed successfully, with intraoperative findings of thickened, adherent pericardium. Postoperatively, the patient demonstrated marked clinical improvement, with resolution of symptoms, enhanced PFTs, and normalization of hemodynamic parameters. The patient was discharged off colchicine and continued on maintenance immunotherapy.

During follow-up in the transplant clinic, the patient remained stable with decreased diuretic requirements. Repeat echocardiography and right heart catheterization confirmed significant improvement in cardiac pressures, consistent with resolution of constrictive pericarditis.

Constrictive pericarditis, though rare in lung transplant recipients, should be considered in unexplained heart failure. Prompt imaging, including MRI and catheterization, and timely surgery can improve outcomes. This case highlights the need for early recognition to prevent delays and ensure recovery.

Biography

Dr. Abdul Rahman Elhassan is a recent MBBS graduate from National University-Sudan with a passion for internal medicine. Dr. Rahman has been involved in both clinical practice and research, presenting work on international platforms. Currently focused on preparing for the USMLE, Dr. Abdul Rahman Elhassan aims to pursue residency in the U.S., with an interest in exploring subspecialties like cardiology, gastroenterology, or pulmonology. Dedicated to both patient care and research, Dr. Elhassan is eager to continue growing in this field and making a positive impact in healthcare



Afrasayab Khan*, Lyluma Ishfaq, Gaurav Luthra, Peter Fattal

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Comparative outcomes of mitralclip therapy versus surgical and conservative management for mitral regurgitation: A meta-analysis

Background: Mitral Regurgitation (MR) is a prevalent valvular heart disease associated with significant morbidity and mortality. While surgical mitral valve repair or replacement remains the gold standard, Transcatheter Mitral Valve Repair (TMVR) using the MitraClip has emerged as a viable option for high-risk surgical candidates. The MitraClip provides a minimally invasive alternative that is particularly beneficial for patients who are considered unsuitable for surgery due to comorbidities. This meta-analysis compares the clinical outcomes of MitraClip therapy versus surgical and conservative management in patients with MR, emphasizing its efficacy, safety, and long-term durability.

Methods: A systematic review and meta-analysis were conducted using data from six key studies: *Benito-González et al. (2017)*, *Wang et al. (2020)*, *Wan et al. (2013)*, *Giannini et al. (2018)*, *Oh et al. (2020)*, and *Yuan et al. (2021)*. Studies comparing MitraClip, surgical repair/replacement, and medical therapy were included. Primary outcomes assessed included all-cause mortality (short and long-term), Heart Failure (HF) hospitalizations, recurrent MR, and need for reoperation. Secondary outcomes included procedural success, 30-day mortality, length of hospital stay, stroke incidence, and pacemaker implantation. A random-effects model was used to pool outcome estimates, ensuring statistical robustness and accounting for variability across studies.

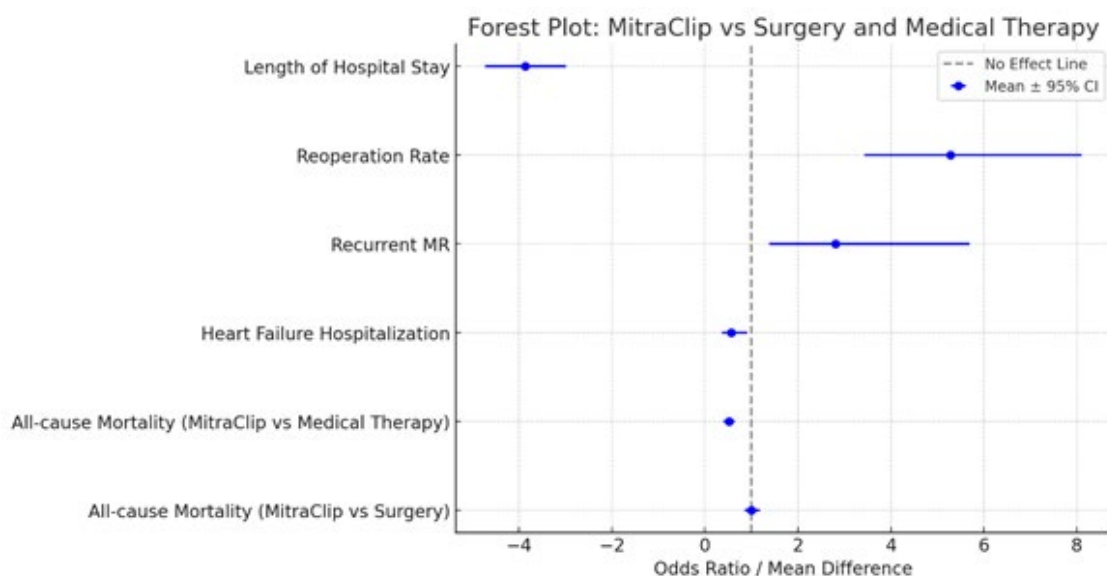
Results:

- **All-Cause Mortality:** MitraClip showed comparable short-term (≤ 30 -day) mortality rates to surgery (2.06% vs. 2.06%) but demonstrated improved one-year survival compared to medical therapy (15.14% vs. 29.04%).
- **Heart Failure Hospitalizations:** MitraClip combined with medical therapy significantly reduced HF hospitalizations compared to medical therapy alone (OR 0.57, 95% CI: 0.36–0.91, $p=0.02$). This suggests a potential protective role for MitraClip in preventing HF-related complications.
- **Recurrent Mitral Regurgitation:** Higher rates of residual MR (\geq moderate) were observed in the MitraClip group compared to surgery (17.2% vs. 0.4%, $p<0.0001$), indicating that surgery remains more effective in achieving sustained MR reduction.

- **Reoperation Rate:** MitraClip was associated with an increased need for reoperation compared to surgery (OR 5.28, 95% CI: 3.43–8.11, $p < 0.01$), highlighting the importance of patient selection criteria to minimize repeat interventions.
- **Length of Stay:** MitraClip patients had significantly shorter hospital stays compared to surgical patients (-3.86 days, $p < 0.01$), though long-term durability remains a concern due to the higher likelihood of recurrent MR.
- **Stroke and Pacemaker Implantation:** No significant differences were observed between groups, indicating that MitraClip is as safe as surgical intervention in terms of thromboembolic complications and conduction disturbances.

Discussion: MitraClip therapy provides a valuable alternative for high-risk surgical candidates, demonstrating similar short-term mortality and reduced HF hospitalizations compared to surgery and medical therapy. However, the increased risk of recurrent MR and need for reoperation highlight the limitations of MitraClip in achieving long-term durability. Surgery remains the superior option for patients who are surgical candidates due to its better MR resolution and lower reoperation rates. The clinical decision-making process should consider patient-specific factors, including anatomical suitability, baseline comorbidities, and long-term quality of life expectations. This analysis underscores the need for standardized guidelines to optimize the selection of candidates who will benefit most from MitraClip therapy.

Conclusion: This meta-analysis supports MitraClip as an effective intervention for high-risk patients with MR, offering survival benefits over medical therapy. However, in lower-risk populations, surgical repair remains the preferred strategy due to superior long-term MR reduction and durability. Further randomized controlled trials with long-term follow-up are needed to refine patient selection and optimize treatment strategies. Additionally, future research should focus on improving MitraClip technology to enhance its durability and minimize recurrent MR, thus broadening its applicability across a wider patient spectrum.



Biography

Afrsayab Khan, MD, is an internal medicine resident physician at Central Michigan University (CMU), Michigan, with a keen interest in cardiology. Mainly research focuses on valvular heart disease, interventional cardiology, and role of AI and emerging technologies in structural heart interventions. Dr. Khan has presented his work at several prestigious cardiology conferences, including the American College of Cardiology (ACC), American Heart Association (AHA), Transcatheter Cardiovascular Therapeutics (TCT), and the Society for Cardiovascular Angiography and Interventions (SCAI). And, Afrsayab continues to contribute to the field through clinical research and collaborative efforts.



Afrasayab Khan*, Lyluma Ishfaq, Gaurav Luthra, Peter Fattal

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Meta-analysis of Fractional Flow Reserve (FFR) vs. Instantaneous Wave-Free Ratio (iFR) in coronary revascularization: A comparative evaluation of outcomes

Background: Fractional Flow Reserve (FFR) is the gold standard for guiding Percutaneous Coronary Intervention (PCI) by assessing the hemodynamic significance of coronary lesions. However, its use is limited by the need for hyperemic agents, leading to increased procedural time and potential side effects. Instantaneous Wave-Free Ratio (iFR) is an alternative physiological index that eliminates the need for hyperemic agents. Although previous Randomized Controlled Trials (RCTs) have suggested non-inferiority of iFR to FFR, there remains controversy regarding long-term clinical outcomes. This meta-analysis aims to compare the effectiveness of iFR versus FFR in coronary revascularization across multiple studies.

Methods: A systematic review and meta-analysis were performed by synthesizing data from five key studies: Maini et al. (2017), Petraco et al. (2014), Nso et al. (2021), Eftekhari et al. (2023), and Sreenivasan et al. (2023). A total of 10,000+ patients with moderate coronary stenoses were included. Primary outcomes included Major Adverse Cardiovascular Events (MACE) and all-cause mortality. Secondary outcomes included Myocardial Infarction (MI), unplanned revascularization, and diagnostic accuracy.

Results:

- **Diagnostic Accuracy:** Maini et al. (2017) reported that iFR had a sensitivity of 78% and specificity of 83% in detecting ischemia compared to FFR, with an overall accuracy of 81%.
- **Clinical Outcomes:**
 - o Petraco et al. (2014) found that iFR and FFR demonstrated similar diagnostic abilities when compared to SPECT, HSR, CFR, and PET imaging.
 - o Nso et al. (2021) reported that FFR-guided PCI led to significantly lower rates of MACE compared to angiography-guided procedures, while iFR-guided PCI showed non-inferiority to FFR.
 - o Eftekhari et al. (2023) demonstrated that iFR-guided revascularization was associated with increased all-cause mortality (HR 1.34, 95% CI 1.08-1.67) and higher MACE rates (HR 1.18, 95% CI 1.035-1.34) compared to FFR over a 5-year period.

- o Sreenivasan et al. (2023) confirmed that iFR was non-inferior to FFR at 1-year follow-up but highlighted the need for further long-term studies.
- **Heterogeneity:** The I² statistic revealed moderate heterogeneity among included studies (I²=-0.63), suggesting differences in study designs and populations may contribute to outcome variability.

Conclusion: This meta-analysis suggests that while iFR provides a practical alternative to FFR by eliminating the need for hyperemic agents, long-term data indicate a potential increase in mortality and MACE when compared to FFR-guided PCI. Although short-term outcomes appear comparable, caution is advised in widespread adoption of iFR in routine practice until further large-scale studies validate its safety and effectiveness. Future research should focus on refining patient selection criteria to optimize the use of physiology-guided coronary revascularization strategies.

Study	Sample Size	Primary Outcome	Effect Size	Lower CI	Upper CI	Hazard Ratio (HR)	MACE (%)	Unplanned Revascularization (%)
Maini et al. (2017)	5756	Diagnostic Accuracy	0.81	0.78	0.84	N/A	N/A	N/A
Petraco et al. (2014)	4126	Diagnostic Utility	0.8	0.76	0.83	N/A	N/A	N/A
Nso et al. (2021)	2193	MACE Reduction	0.73	0.56	0.94	0.73	Lower with FFR	Reduced
Eftekhari et al. (2023)	2254	Mortality & MACE	1.18	1.035	1.34	1.34	Higher with iFR	Higher with iFR
Sreenivasan et al. (2023)	2160	Long-term Non-inferiority	1.03	0.84	1.27	1.03	Similar for FFR/iFR	Similar for FFR/iFR

Biography

Afrasayab Khan, MD, is an internal medicine resident physician at Central Michigan University (CMU), Michigan, with a keen interest in cardiology. His research focuses on valvular heart disease, interventional cardiology, and role of AI and emerging technologies in structural heart interventions. Dr. Khan has presented his work at several prestigious cardiology conferences, including the American College of Cardiology (ACC), American Heart Association (AHA), Transcatheter Cardiovascular Therapeutics (TCT), and the Society for Cardiovascular Angiography and Interventions (SCAI). He continues to contribute to the field through clinical research and collaborative efforts.



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Association between endothelial dysfunction assessed by Reactive Hyperemia Index (LnRHI) and diabetes mellitus in heart transplant recipients

Background: Endothelial Dysfunction (ED) is a key factor in cardiovascular disease and is commonly observed in Heart Transplant (HTx) recipients. The reactive Hyperemia Index (LnRHI) is a validated, noninvasive marker of ED. Diabetes Mellitus (DM), a well-established risk factor for vascular dysfunction, may exacerbate ED in HTx recipients; however, this association remains unclear.

Objective: To investigate the association between peripheral endothelial function and DM in HTx recipients.

Methods: This cross-sectional study included 39 HTx recipients (aged 18-65 years, ≥6 months post-transplant), with stable clinical conditions. Endothelial function was assessed using the EndoPAT 2000 device.

Results: Endothelial dysfunction was identified in 31% of HTx recipients. Participants were stratified into two groups based on LnRHI: Those with ED (n=12) and those with normal endothelial function (n=27). In the group with ED, 67% had DM. A significant association was observed between LnRHI and DM, with a moderate effect size ($p=0.012$, effect size=0.43).

Conclusion: These findings suggest that HTx recipients with DM are more likely to present with endothelial dysfunction, underscoring the importance of optimizing metabolic control in this population. Further studies are warranted to elucidate the underlying mechanisms and potential clinical implications.

Biography

Dr. Armèle Dornelas de Andrade is a Full Professor at the Federal University of Pernambuco (UFPE), Brazil. Holds degrees in Physiotherapy and Physiology from UFPE and a Ph.D. in Pneumoallergology from Université d'Aix-Marseille III, France, with postdoctoral training at the University of British Columbia, Canada. Dr. Armèle's research focuses on respiratory physiology and physiotherapy, particularly aerosol therapy and respiratory muscle function. Dr. Armèle Dornelas de Andrade has published over 160 scientific articles, 17 book chapters, and has an h-index of 29. Also, actively mentors graduate students and collaborates internationally, being a member of the International Society of Aerosols in Medicine and the European Respiratory Society.



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A fatal case of group B strep endocarditis

Streptococcus agalactiae, commonly known as Group B Strep (GBS), is an uncommon pathogen in most adults and is typically only seen in pregnant women and neonates. Local and systemic complications from GBS typically have a high mortality rate, with Infective Endocarditis (IE) being aggressive and deadly. We present a rare case of GBS IE in an 85-year-old female with a history of chronic lower extremity wounds that presented with acute left knee pain. Patient was found to have a septic joint and underwent an I&D. Surgical cultures were obtained growing GBS. Patient was started on IV ceftriaxone; but soon after, the patient started developing severe dyspnea. TTE showed mobile echodensity associated with posterior mitral valve leaflet with severe mitral regurgitation and pulmonary hypertension. Repeat blood cultures grew GBS in 4/4 bottles. A TEE was performed showing a mycotic aneurysm and an aortic root abscess. A shared decision with the patient and family was made to not pursue surgical intervention. Patient was managed with IV ceftriaxone through a PICC line for six weeks. Patient re-presented with severe dyspnea and hypoxia, wide complex tachycardia, and atrial fibrillation shortly after discharge. Goals of care were discussed with the patient and family who opted for comfort care. Patient expired shortly after.

GBS presents with an especially aggressive phenotype of IE among streptococcus species, and mortality rates can be as high as 40%. Complications are common and they include systemic embolization, severe valvular dysfunction, mycotic aneurysms, arrhythmias, and heart failure, which often present acutely.

Shared decision-making involving the patient, family, and interdisciplinary team of CT surgeons, interventional cardiologists, infectious disease, and palliative care teams remains important. Future studies are needed to evaluate outcomes between surgical/endovascular intervention of the valves vs. long-term antibiotics vs. a combination of both.

Biography

Bhavya Parikh is a PGY-3 now finishing Internal Medicine Residency in New York and wants to pursue a cardiology fellowship. Bhavya Parikh obtained MD from Meharry Medical College in Nashville with a cum laude distinction and finished undergraduate studies at University of Tennessee with Magna cum laude distinction. Has multiple research interests spanning translational and clinical medicine in Cardiology and has been published in various high achieving journals while in residency and medical school.



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Association of red blood cell distribution width with mortality in type a aortic dissection after surgery

Objective: Aortic dissection is closely associated with inflammation. Currently, Red Blood Cell Distribution Width (RDW) has been regarded as a novel inflammatory biomarker. The role of RDW on the prognosis of patients with Type A aortic dissection after surgery still remains unclear. This study aims to explore the association between preoperative RDW with 30-day mortality in acute Type-A aortic dissection after surgery.

Methods: Retrospective analyses have been performed on patients with acute Type-A aortic dissection from January 1, 2016, to Sep 30, 2023. The locally weighted scatter plot smoothing (lowess) method was utilized to display the crude association between RDW and 30-day mortality. The area under the receiver operating characteristic curve (AUC) was used to assess the discrimination. The cut-off value (14.55) of RDW was calculated using the youden index method. The primary outcome was 30-day mortality.

Results: A total of 358 patients were collected. The Lowess curve showed an approximate positive linear relationship between RDW and 30-day mortality. In the multivariable logistic regression model, RDW was an independent risk factor (odds ratio [OR]=1.55, 95% Confidence Interval [CI] 1.24-1.93, $p<0.001$) for 30-day mortality. Besides, RDW (AUC 0.69, 95% CI 0.59-0.79) demonstrated great discrimination for 30-day mortality. High RDW (≥ 14.55) consistently had a higher risk of 30-day mortality (OR=4.27, 95% CI 1.53-11.96, $p=0.006$) after adjusting for all included covariates, compared with low RDW (<14.55). The Kaplan-Meier survival curve showed patients with low RDW show better 30-day survival rates than those with high RDW ($p<0.001$).

Conclusions: Preoperative high RDW could serve as an independent risk predictor for 30-day mortality. The cut-off value of RDW can be utilized for risk stratification, assessment of the prognosis and further provide guidance for the treatment among patients with acute Type-A aortic dissection following surgery.

Biography

Bufan Zhang is currently studying PhD in cardiovascular surgery at Tianjin Medical University General Hospital. Bufan Zhang received clinical training at the TEDA International Cardiovascular Hospital and got a master's degree in cardiovascular surgery from Tianjin Medical University. Zhang's research interests are basic and clinical research of cardiovascular diseases.



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Comparison of minimally invasive and conventional coronary artery bypass grafting in patients older than 75 years

Objective: Coronary Artery Bypass Grafting (CABG) via sternotomy is the standard and conventional procedure for patients with multivessel coronary artery disease. Minimally invasive coronary artery bypass grafting (MICS CABG) via left thoracotomy has become an alternative procedure because it can protect the integrity of the sternum and promote recovery. The technical difficulty of MICS CABG restricts its widespread implementation. This study aims to evaluate the clinical outcomes of elderly patients between the MICS CABG group and the conventional CABG group.

Methods: This observational study retrospectively collected patients older than 75 years who underwent CABG from Dec 1, 2019, to Aug 30, 2023. The whole cohort was further divided into the MICS CABG group or the conventional CABG group. The primary outcome was one-year mortality after surgery. Secondary outcomes included postoperative stroke, renal insufficiency, infection, atrial fibrillation, and length of hospital stay.

Results: A total of 285 patients were collected, including 156 patients in the conventional group and 129 cases in the MICS CABG group. The Kaplan-Meier curve showed that there was no significant difference in the one-year mortality between MICS CABG and the conventional CABG group. MICS CABG had a lower incidence of postoperative stroke than the conventional CABG (2.33% vs 8.33%, $P=0.03$). Logistic regression analysis showed that MICS CABG was associated with a lower risk of postoperative stroke ($OR=0.26$, 95% CI 0.07-0.94, $p=0.04$) compared with the conventional CABG group. There appeared to be no differences in postoperative renal insufficiency, infection, and atrial fibrillation between both procedures (All $p>0.05$). Besides, the length of hospital stay was shorter in the MICS CABG group as compared to the conventional CABG group ($p=0.02$).

Conclusions: MICS CABG can bring a similar one-year survival rate and a lower incidence of stroke compared with the conventional CABG. MICS CABG is a safe and effective procedure for elder patients. Further studies are needed to compare the long-term outcomes of both approaches.

Biography

Bufan Zhang is currently studying PhD in cardiovascular surgery at Tianjin Medical University General Hospital. Bufan Zhang received clinical training at the TEDA International Cardiovascular Hospital and got a master's degree in cardiovascular surgery from Tianjin Medical University. Zhang's research interests are basic and clinical research of cardiovascular diseases.



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Assessing quality of content on tiktok: Postural orthostatic tachycardia syndrome

Background: According to a study conducted in 2020 there is a prevalence of .2% of the general population living with Postural Orthostatic Tachycardia Syndrome. However, due to the covid-19 pandemic, rates of diagnosis are on the rise and therefore there are increased discussions on social media over the possibility of underdiagnosis. With over 1.092 billion adult users globally, tiktok has been increasingly utilized for health education. Postural Orthostatic tachycardia syndrome has become a popular health topic on tiktok with both clinicians and non-clinicians. As a result, concerns over misinformation about POTS have been on the rise.

Methods: 3 separate tiktok accounts were created with anonymous usernames, each set to a birthdate of January 1, 1999, and a gender of non-binary. No interests were selected on these accounts to minimize the influence of the algorithm. Videos were sourced through the tiktok search function using the terms “Postural Orthostatic Tachycardia Syndrome”, “Postural Orthostatic Tachycardia Syndrome diagnosis”, and “Postural Orthostatic Tachycardia Syndrome treatment”. A total of 100 videos were selected for review. Each video was evaluated using the DISCERN tool and the Global Quality Score (GQS) system to assess the quality of content related to POTS. The mean DISCERN score and GQS was then calculated for the entire sample, the content made by physicians, and the content made by non-physicians. The content made by physicians vs non-physicians was compared using a p-value.

Results: A total of 100 videos were analyzed, with 21% of the videos published by clinicians and 79% by non-clinicians. The majority of videos focused on identifying symptoms that correlate with an POTS diagnosis, often times through personal experience. The mean scores for DISCERN and GQS were 35.99 ± 8.86 and 8.51 ± 1.96 , respectively. Physicians posted the highest scores with a mean score using DISCERN (45.55 ± 9.29), and non-physicians had a mean DISCERN score (33.46 ± 6.94). Clinicians had a significantly higher score via DISCERN when compared to non-clinicians (p-value <0.001).

Conclusions: The average DISCERN and GGS scores of the tiktoks analyzed in this study show that tiktok overall has low quality information on POTS. A majority of the content was focused on diagnostic criteria, failing to include sources and discuss treatment options. Content by physicians had significantly higher DISCERN than those created by non-clinicians. Physicians on tiktok should include treatment options, sources of information for users to review, and encourage shared decision making with providers. This study did not receive any compensation.

Biography

Hannah Visser graduated from Michigan State University with a Bachelor of Science in Human Biology in 2022. Currently, a third-year medical student at William Carey University College of Osteopathic Medicine, Hannah Visser is passionate about pursuing a career in internal medicine.



Kalpesh Patel*, Paul Wright, Sotiris Antoniou, Professor Riyaz Patel

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The management of hypercholesteremia with lipid lowering therapy inclisiran

Increasing prevalence of cardiovascular disease leading to events such as myocardial infarction requires aggressive management of secondary prevention therapy. Lipid lowering treatments which target Low Density Lipoprotein (LDL-C) requires advanced treatment strategies in addition to conventional statin therapy to reach guideline targets. Inclisiran a small interfering RNA (siRNA) interferes with mRNA that produces Proprotein Convertase Subtilisin Kexin type 9 (PCSK9). High levels of LDL-C are associated with increased cardiovascular disease.

We evaluated the change in lipid profile in patients with cardiovascular disease being treated with inclisiran under the CVD Risk and Lipid clinic at St Bartholomew's Hospital (SBH). Data from 170 patients was collected from the electronic medical records who are currently being offered inclisiran as part of the CVD Risk and Lipid clinic at SBH. Patients included in this analysis were in clinic from June 2022 to July 2024. Patients were analyzed for changes in LDL-C after each clinic management.

A total of 170 patients were evaluated and these patients were awaiting doses ranging from the first to the seventh inclisiran 284mg injection, the largest group being 33.7% currently awaiting their 3rd dose. 22 patients were awaiting their first dose of inclisiran and were excluded from treatment analysis. The results demonstrated an average LDL-C level at baseline amongst the 148 patients was 3.52 mmol/L. The average LDL-C at 3 months after the first dose was 1.86 mmol/L; a 42.2% decrease on average. More than 50% of patients achieved a decrease in LDL-C of 50% or more overall from baseline. The baseline treatment with the largest average decrease in LDL-C after 3 months was with ezetimibe 10mg plus bempedoic acid 180mg at 68.6%. However, the most common baseline treatment was atorvastatin 80mg with 26 patients.

Overall, the CVD Risk and Lipid Clinic reviews majority of patients across North East London (NEL) and has proven to be an effective clinic for patients reducing their cardiovascular risk. A significant achievement of over 50% of patients have seen an LDL-C reduction of 50% or greater supporting guideline targets of LDL-C following cardiovascular events such as a myocardial infarction. Further oral lipid lowering therapies such as conventional statins, ezetimibe, bempedoic acid and Icosapent ethyl are available options for patients who need further optimization of LDL-C reduction to achieve guideline targets.

Biography

Mr Kalpesh Patel studied Pharmacy in Kingston University London and graduated with a MPharm degree in 2013. He then joined Barts Health NHS Trust to complete his GPhC pre-registration training. He is currently working as a highly specialist cardiac pharmacist at St Bartholomew's Hospital in London, a tertiary referral center for cardiovascular medicine as part of Barts Health NHS Trust. Kalpesh is the lead pharmacist for cardiothoracic surgery and is part of the CVD Risk Prevention and Lipid clinic, with a specialist interest in acute coronary syndrome and lipid management. He has published various articles in the Pharmaceutical Journal supporting cardiovascular disease and management.



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Determinants of arterial compliance and vascular resistance in healthy children and adolescents

Background: Early exposure to cardiovascular risk factors during childhood is associated with impaired arterial distensibility, as well as other vascular alterations, suggesting that biomarkers of vascular aging can be used to identify children and adolescents at risk. Reduced arterial compliance and increased vascular resistance are the earliest detectable manifestations of adverse structural and functional changes in the vessel wall, leading to arterial system stiffening.

Objectives: To investigate predictors and propose reference equations for arterial compliance and vascular resistance, assessed in central (Cc and Rc) and peripheral (Cp and Rp) regions, in healthy children and adolescents.

Methods: A cross-sectional, observational study was conducted with n=235 healthy children and adolescents aged 5 to 19 years. Cardiovascular parameters were assessed using the oscillometric method for brachial artery pressure measurement, providing a non-invasive estimate of central blood pressure via the Mobil-O-Graph® (IEM, Stolberg, Germany). Based on cardiovascular parameters, compliance (stroke volume index/peripheral or central pulse pressure, $Cp = iSVI/PPp$ or $Cc = iSVI/PPc$) and resistance (peripheral or central pulse pressure index/stroke volume index, $Rp = PPp/iSVI$ or $Rc = PPc/iSVI$) were evaluated. The stroke volume index was calculated as the ratio of stroke volume to body surface area. Additionally, anthropometric data, physical activity profile (Physical Activity Questionnaire for Children), and quality of life (Pediatric Quality of Life Inventory™) were assessed.

Results: Participants were categorized by age group into children (n=133) and adolescents (n=102) and by sex into male (n=112) and female (n=114) for comparison of mean values across the four groups. This categorization was also used to analyze the association between different variables and C and R. Predictors of Cp included age group, body mass index (BMI), Waist-to-Height Ratio (WHtR), central Pulse Pressure (PPc), and augmentation index adjusted to 75 bpm (Alx@75). For Cc, identified predictors were age, BMI, WHtR, peripheral Systolic Blood Pressure (SBPp), and Alx@75. The coefficients of determination for Cc and Cp were 40.2% and 43.2%, respectively. Predictors of Rp included age, BMI, WHtR, Heart Rate (HR), and Alx@75. Predictors of Rc were age, BMI, WHtR, SBPp, and Alx@75. The coefficients of determination for Rc and Rp were 41.9% and 36.9%, respectively. Variables related to physical activity profile and quality of life were not considered predictors of C and R.

Conclusion: For the first time, we identified independent predictors of central and peripheral arterial compliance and vascular resistance. These findings highlight the importance of factors such as age, body composition, and arterial stiffness indices (PP and AIx) in predicting arterial compliance and central and peripheral vascular stiffness. Reference equations for arterial compliance and vascular resistance may facilitate the early diagnosis of atherosclerosis and provide an objective measure of the vascular effects of interventions aimed at modifying cardiovascular risk factors.

Biography

Maria da Glória Rodrigues-Machado holds a Post-doctorate from Harvard Medical School-Anesthesia Center for Critical Care Research, MGH. She earned her Master's, Doctorate and Post-doctorate in Biological Sciences (Physiology and Pharmacology) from the Federal University of Minas Gerais. She is a Professor of the Post-Graduate Program in Health Sciences at Faculty of Medical Sciences of Minas Gerais, in the research field of Sciences Applied to Cardiovascular Diseases. She has experienced in physiology and pathophysiology of cardiovascular diseases with emphasis on blood arterial pressure and the renin-angiotensin system. Maria is a Leader of the research group "Pathophysiology, evaluation and intervention in respiratory and cardiovascular diseases". Collaborator of the Youth Vascular Consortium (Baker Heart and Diabetes Institute, Melbourne, Australia).



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Association of arterial stiffness and changes in intrinsic capacity through the locomotion domain in elderly people in primary care

Aging is one of the risk factors for cardiovascular diseases. In particular, excessive pulsatility is associated with microvascular lesions in high-flow organs, such as the brain and kidney, suggesting that small vessels are damaged. On the other hand, Intrinsic Capacity(IC) is a comprehensive measure of individual physiological reserve, and as individuals age, IC declines. Locomotion is considered one of the most affected domains in elderly people. This study aimed to investigate the association between arterial stiffness and changes in IC through the locomotion domain in elderly people in primary care. This is a cross-sectional study (approval number: 6,813,872) with a randomized sample of 95 elderly individuals (68.65 ± 6.44 years [67.00]; 72 women and 23 men) of both sexes registered in the Basic Health Units (UBS) of Belo Horizonte, MG, Brazil. Elderly individuals who were unable to travel to the UBS for any reason were excluded. Cardiovascular parameters were assessed using the Mobil-O-Graph device (IEM, Stolberg, Germany), which estimates central blood pressure non-invasively from the oscillometric pressure of the brachial artery. Three measurements were performed, and the mean was considered for the final analysis. The arterial stiffness index assessed was pulsatility (Central pulse pressure/Central diastolic blood pressure). Changes in IC in the locomotion domain were assessed using the 4-meter Gait Speed test (GS), in which participants were asked to walk at their usual speed over a marked distance of 4 meters, considering one meter for acceleration and one meter for deceleration. Two runs were performed, and the shortest time was considered ($GS < 0.8 = \text{decline}$). Data were analyzed using the Statistical Package for the Social Sciences (SPSS) 25.0 and JASP version 0.18.3.0 software. Continuous variables were expressed as mean \pm standard deviation. Data normality was assessed using the Shapiro-Wilk test. Correlations were performed using Pearson's correlation coefficient, and the significance level was set at 5%. Multivariate analysis was performed for multivariate and IC. Pulsatility (0.44 ± 0.13 [0.41]) had a minimum value of 0.18 and a maximum of 0.80. Changes in IC, assessed using the locomotion domain, were associated with pulsatility ($p = 0.025$). An average increase of 7.26 in pulsatility is associated with a greater probability of changes in IC. It can be concluded that increased pulsatility is related to the involvement of important

organs. The higher the pulsatility, the worse the outcomes for individuals. In clinical practice, simple tests can identify negative outcomes. Further research is needed with a larger number of participants.

Biography

Maria da Glória Rodrigues-Machado holds a Post-doctorate from Harvard Medical School-Anesthesia Center for Critical Care Research, MGH. She earned her Master's, Doctorate and Post-doctorate in Biological Sciences (Physiology and Pharmacology) from the Federal University of Minas Gerais. She is a Professor of the Post-Graduate Program in Health Sciences at Faculty of Medical Sciences of Minas Gerais, in the research field of Sciences Applied to Cardiovascular Diseases. She has experienced in physiology and pathophysiology of cardiovascular diseases with emphasis on blood arterial pressure and the renin-angiotensin system. Maria is a Leader of the research group "Pathophysiology, evaluation and intervention in respiratory and cardiovascular diseases". Collaborator of the Youth Vascular Consortium (Baker Heart and Diabetes Institute, Melbourne, Australia).



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Periodontal and cardiovascular disease: Shared pathophysiology and therapeutic implications – New insights for 2025

Periodontal disease is increasingly recognized as a significant systemic contributor to atherosclerosis. Key oral pathogens—*Porphyromonas gingivalis*, *Aggregatibacter actinomycetemcomitans*, *Treponema denticola*, and *Tannerella forsythia*—are implicated in all major stages of atherogenesis. First, these bacteria release phospholipase A2, promoting the formation of small dense LDL particles (sdLDL), which are strongly associated with elevated Apolipoprotein B (ApoB), a well-established predictor of Atherosclerotic Cardiovascular Disease (ASCVD). Second, bacterial lipopolysaccharides compromise endothelial integrity by increasing permeability and upregulating adhesion molecules, facilitating monocyte infiltration and triggering systemic inflammation via the innate immune response. Third, negatively charged bacterial components interact electrostatically with positively charged ApoB residues, enhancing lipoprotein retention within the arterial intima—a key step in plaque formation [1].

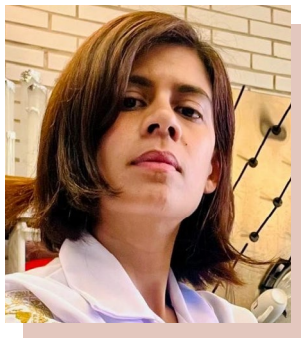
Moreover, periodontitis correlates with elevated systemic inflammatory markers, including C-Reactive Protein (CRP), interleukin-1, and fibrinogen, all associated with increased incidence of Venous Thromboembolism (VTE), including deep vein thrombosis and pulmonary embolism [2]. Notably, CRP levels above 3 mg/L indicate high risk for major cardiovascular events. Clinical studies demonstrate that periodontal therapy—particularly antibiotic regimens such as amoxicillin-metronidazole or tetracyclines—can significantly reduce these markers, indicating a potential cardioprotective effect.

Additionally, oral bacteria like *Streptococcus* and *Staphylococcus* species can lead to infective endocarditis, especially in patients with prosthetic valves or congenital heart defects, reinforcing the need for prophylactic antibiotics during invasive dental procedures in high-risk individuals [3].

Current evidence supports a causal role of periodontal disease in ASCVD by influencing three core pathogenic mechanisms. While periodontal disease is primarily managed in dental settings, its systemic effects demand interdisciplinary strategies. Identifying effective treatment pathways may offer a promising route for reducing cardiovascular risk through periodontal intervention.

Biography

Neda Najafimakhsoos graduated with highest honors from the University of Bologna in October 2022, receiving the award for Best Academic Performance. Passed the INBDE in 2024 and is completing a Master's degree in Orthodontics and Endodontics in 2025. Deeply interested in the systemic implications of oral health, with focused knowledge in periodontitis, oral surgery, and endodontics in relation to systemic disease. Actively participates in relevant conferences and has presented multiple scientific posters on these topics.



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Effect of corticosterone on blood pressure in SHR ovariectomized rats

Introduction: Hypertension (HTA) is a major risk factor for cardiovascular diseases. Spontaneously Hypertensive Rats (SHR) serve as a genetic model that mimics the characteristics of human disease. Female SHR generally exhibit lower Blood Pressure (BP) than their male counterparts, primarily due to the protective effects of estrogens. Ovariectomy (OVX), which reduces estrogen, leads to increased BP. Corticosteroids are known to potentiate the effects of angiotensin II and upregulate the AT1 receptors, thereby influencing BP regulation.

Objective: To evaluate the effect of corticosterone on BP in SHR ovariectomized rats.

Methods: Six-month-old SHR and WKY-Kyoto (WKY) rats, both male and female, were used. Female rats were divided into ovariectomized and non-ovariectomized groups. An additional group of 12-month-old female SHR was included to evaluate age-related changes. Corticosterone (5 mg/kg, i.p.) was administered once, and BP was measured using tail-cuff plethysmography (IITC Life Science, MRBP System). Data were analyzed using one-way ANOVA followed by Tukey's post hoc test ($p < 0.05$).

Results: OVX significantly increased Systolic Blood Pressure (SBP) in SHR (SHR-OVX: 154 ± 2 mmHg vs. SHR: 144 ± 5 mmHg, $p < 0.05$), without affecting Mean Blood Pressure (MAP) or Diastolic Blood Pressure (DBP). No significant changes were observed in WKY rats. OVX rats exhibited a 12% increase in body weight, similar to age-related weight gain observed in 12-month-old SHR. Corticosterone administration did not modify BP in any group.

Conclusion: Ovariectomy elevated SBP in SHR, while corticosterone administration had no effect on BP in any of the groups.

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Biography

Dr. Yanina Santander Plantamura earned her PhD in Biochemistry from the University of Buenos Aires (UBA), where she pioneered the development of nanomicellar formulations of carvedilol and curcumin for cardiovascular applications through her doctoral research. She is currently a postdoctoral fellow at the Biomedical Research Unit of the UNAM's (Mexico), working under the supervision of Prof. Rafael Villalobos Molina. Her current research explores hormonal modulation of hypertension using SHR, integrating her expertise in nanomedicine with vascular physiology. Dr. Santander has published in peer-reviewed journals, advancing the interface between nanotechnological innovation and translational cardiovascular research, and has actively contributed to PAPIIT funded projects.

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Dr. Amitabh Satsangi

AIIMS, India

Minimally invasive cardiac surgery in congenital heart diseases: The new horizon

Sternotomy has been the most common approach for the correction of congenital cardiac defects, and questions arise surrounding the safety, feasibility, and cost-effectiveness of implementing minimally invasive techniques in congenital cardiac surgery, despite their global adoption over the past three decades. Extensive scientific literature has emerged since the initial report of the minimally invasive approach to Congenital Heart Defects (CHD) in 1998. Nevertheless, the availability of published data from India on this subject remains limited. We aim to describe the techniques and outcomes of minimally invasive cardiac surgery in selected pediatric cases, a subject not previously detailed within the Indian population, and its corresponding surgical setup.

Biography

Dr. Amitabh Satsangi MBBS, MS (Gen Surgery), MCH (CTVS), DNB CTVS, MNAMS, FACS, DHHM, he is currently working as assistant professor in department of CTVS AIIMS, New Delhi. He was done MS (Gen Surgery) From GSVM Medical college in 2018 with Honours, MCh Cardiovascular and thoracic surgery from AIIMS New Delhi with first rank. He has Selected as Thoracic Surgery Foundation SAHA scholar in 2020. He has published many articles in various national and international journals.



Dr. Deepak Puri

Senior Director CTVS Max Superspecialty Hospital Mohali

Comprehensive surgical revascularization for rapidly worsening ischemic heart failure

Ischemic Heart Failure usually occurs due to delayed treatment of coronary artery disease. Rapidly worsening ischemic heart failure can occur due to Acute onset STEMI in a patient with critical multi vessel coronary artery disease with or without previously compromised left ventricular Ejection fraction. Majority of these patients may not be suitable for percutaneous interventions and Urgent Surgical Revascularization is lifesaving. Comprehensive Guidelines Directed Medical Therapy has complementary benefits which further reduces mortality as well as morbidity and significantly reduces risk of repeated hospitalization.

Methods: Between 1st July 2019 and 1st April 2025 we performed urgent Revascularization in 361 such patients 77 were having low risk Euro score (0-2), 115 had moderately high risk while remaining had high or very high risk (8-80). Prompt Off pump surgical Revascularization was performed. Intraaortic balloon pump was inserted in hemodynamically unstable patients with high pulmonary artery pressure and when mean arterial blood pressure was not achievable despite maximum inotropes or in presence of intractable ventricular arrhythmias. GDMT was initiated early and Varicigat was added those patients who could not be optimized with GDMT or where it could not be initiated to the desired levels due to comorbidities.

Result: Post operative hospital stay was 3.2 days in low-risk group, 4.6 days in moderate risk and 7.3 in high risk. Need for IABP insertion was also very low and there were only 2 conversions to pump due to Cardiac arrest refractory to open Cardiac massage. There was significant improvement in LVEF in all patients and Mitral regurgitation which was moderate to severe was reduced to mild to trivial. Mortality was 0 in low-risk patients, 1 in moderate and 3 in high and very high risk and worsening renal failure was associated with mortality in 2. The total expenses were 19.4% less than expected in low-risk patients while in high risk it was 50% less.

Conclusion: Comprehensive GDMT along with Off pump Surgical Revascularization shortens hospital stay, reduces IABP requirement, Reduces MR, improves LVEF and drastically reduces Mortality and Mortality in patients with rapidly worsening Heart failure.

Biography

Dr. Deepak Puri is Global Chairman of Cardiomersion. He has been Assistant Professor at PGIMER Chandigarh, Additional Director CTVS at Fortis Hospital Mohali, Senior Director CTVS Max Superspecialty Hospital Mohali, apart from being Professor in practice at Chandigarh University and Chairman of Ethical Committee. His area of interest is Off pump Coronary bypass in high risk as well as Ischemic Heart Failure and Uniportal VATS. He has more than 80 publications and has written chapter in Book, presented more than 200 papers apart from being Organizing Chairman of more than 20 International Conferences. He has received 8 Travel Grants and received several awards including Most Trusted CTVS Surgeon Asia GCC, Indian Icon, International Healthcare Professional and Himotkarsh Himachalshree.



Dr. Deepak Puri

Senior Director CTVS Max Superspecialty Hospital Mohali

Benefits of modified uniportal VATS for management of complex thoracic cases

Uniportal Video Assisted Thoracoscopic Surgeries (UVATS) have advantage of making Thoracic Surgery minimally invasive without compromising on outcome. VATS was initially performed through multiple ports but in patients with dense adhesions and complex locations many times accurate visibility is hindered making surgery difficult. The advent of Uniportal VATS in last decade simplified Thoracoscopic Surgeries and has several advantages but sometimes dense adhesions may necessitate conversion to open thoracotomy. We have modified the Uniportal VATS technique to further facilitate complex Thoracic Surgeries.

Patients and Methods: This modified UVATS technique has further improved the direct visibility by specially designed retractors. We also utilise anterior as well as posterior approach through a single 3 to 4 cm incision which is later used for intercostal drains placement after completion of the procedure.

This has been utilised to perform 164 wide range of thoracoscopic procedures like Segmental Resection for Mucormycosis/Aspergillomas (16), removal of foreign bodies trapped in airways(1), Endocystectomy for Pulmonary Hydatidosis((9), Lung injuries/ clotted Hemothorax(11), simple or Giant Bullectomies(19), Decortications(90) and release of trapped lung, removal of Bronchogenic cysts (subcarinal-2,cervicomediastinal-1), removal of Mediastinal Goiter (1), Thymectomies (4), Epicardial lead insertion (2), as well as for several advanced Thoracic malignancies(12).

Result: Majority of patients were extubated on table, mobilised on first post operative day and mean hospital stay was 3.5 days. The advantages of this unique technique are that it improves exposure for surgeons with direct visualisation similar to that of Open Thoracotomy. At the same time, it is less painful, less costly for patient, facilitates complex procedures with reduced hospital stay and early return to normal activity apart from being cost effective.

This technique has a shorter learning curve, is less expensive and can be utilised to perform all kinds of complex thoracoscopic procedures without need for conversion to open technique.

Biography

Dr. Deepak Puri is Global Chairman of Cardiomersion. He has been Assistant Professor at PGIMER Chandigarh, Additional Director CTVS at Fortis Hospital Mohali, Senior Director CTVS Max Superspecialty Hospital Mohali, apart from being Professor in practice at Chandigarh University and Chairman of Ethical Committee. His area of interest is Off pump Coronary bypass in high risk as well as Ischemic Heart Failure and Uniportal VATS. He has more than 80 publications and has written chapter in Book, presented more than 200 papers apart from being Organizing Chairman of more than 20 International Conferences. He has received 8 Travel Grants and received several awards including Most Trusted CTVS Surgeon Asia GCC, Indian Icon, International Healthcare Professional and Himotkarsh Himachalshree.



Eric J Lehr

Cherry Hill Campus, United States

Advances in minimally invasive cardiac surgery

Minimally invasive cardiac surgery has entered a new era, propelled by advances in robotics and Artificial Intelligence (AI). This presentation explores how these technologies are reshaping surgical care across the full patient continuum—from preoperative planning to intraoperative support and postoperative monitoring. Robotic platforms like the da Vinci system now enable complex procedures, such as mitral valve repair and coronary bypass grafting, to be performed through small ports with improved visualization and precision. Simultaneously, AI is transforming surgical workflows. Machine learning models now outperform traditional risk scores in predicting complications and aid in patient selection and surgical planning. Intraoperatively, AI-driven augmented reality and computer vision enhance real-time decision-making, while postoperative AI monitoring flags complications early. We review current evidence comparing robotic and open approaches, showing that robotic surgery can match or surpass traditional methods in selected centers. We also address key limitations, including regulatory hurdles, ethical concerns, and the steep learning curve for new users. Finally, we explore emerging innovations such as semi-autonomous robotic maneuvers, digital twin simulation models, and the potential for remote cardiac surgery. Surgeons remain central to this transformation—but understanding these tools is essential for guiding their safe and effective integration into practice. Attendees will leave with a grounded understanding of how AI and robotics can enhance precision, reduce invasiveness, and personalize care in modern cardiac surgery.

Biography

Dr. Eric Lehr has practiced Cardiac Surgery at the Swedish Heart and Vascular Institute, the largest cardiac surgery center in the Pacific Northwest of the United States, for more than 13 years where he is Chief of Staff – Cherry Hill Campus. He serves as Director of Minimally Invasive Cardiac Surgery and Director of Cardiac Surgery Research and Education. In addition, Dr. Lehr leads the Surgical Mitral Valve Program and the Hypertrophic Cardiomyopathy Center and is cofounder of the Swedish Pulmonary Embolism Response Team. Dr. Lehr is active in the leadership of several local, national and international societies, including The Cardiac Care Outcomes Assessment Program for the State of Washington where he has been a member of the management committee since 2011 and is the chair of the management committee. Dr. Lehr is a member of the Board of Directors for the International Society for Minimally Invasive Cardiac Surgery and was the 58th President of the Eastern Cardiothoracic Surgical Society. Dr. Lehr is the treasurer for The PERT Consortium. He has authored over 85 peer reviewed papers, 8 book chapters, 17 published abstracts and has over 150 presentations at major national and international meetings. He sits on the Editorial Boards of Annals of Thoracic Surgery, Innovations and previously, The European Journal of Cardiothoracic Surgery. When not at work, Dr. Lehr enjoys spending time with his wife and three children and is an avid downhill skier, water skier and cyclist.



Jasmine

Pharm. D student, Chandigarh Group of Colleges, Landran, Punjab, India

Role of vericiguat in acute decompensating heart failure

Vericiguat is a novel oral soluble Guanylate Cyclase (sGC) stimulator used in the treatment of Heart Failure with reduced Ejection Fraction (HFrEF). It belongs to a new class of medications that enhance the cyclic Guanosine Monophosphate (cGMP) pathway, which plays a crucial role in cardiovascular function. By stimulating sGC, Vericiguat increases the levels of cGMP, leading to vasodilation, reduced cardiac workload, and improved myocardial function.

The primary mechanism of action of Vericiguat involves the enhancement of the Nitric Oxide (NO)-sGC-cGMP signaling pathway. This results in vasodilation and improved blood flow, which helps in reducing the symptoms and progression of heart failure. Vericiguat has shown significant benefits in patients with acute decompensating heart failure, particularly those who have recently been hospitalized or received intravenous diuretic therapy. Clinical trials have demonstrated that Vericiguat reduces the risk of cardiovascular death and heart failure hospitalization, making it a valuable addition to the standard treatment regimen for heart failure patients.

Despite its benefits, Vericiguat is associated with some adverse effects. The most common side effects include symptomatic hypotension and syncope. These effects are generally mild to moderate in severity but require careful monitoring, especially in patients with a history of low blood pressure. Contraindications for Vericiguat include hypersensitivity to the drug or any of its components, as well as concurrent use with other sGC stimulators or phosphodiesterase-5 inhibitors, which can lead to severe hypotension. In conclusion, Vericiguat represents a promising therapeutic option for patients with acute decompensating heart failure. Its unique mechanism of action and proven efficacy in reducing cardiovascular events make it an important addition to the heart failure treatment landscape. However, careful consideration of its adverse effects and contraindications is essential to ensure patient safety and optimal outcomes.

Biography

Jasmine is a third-year Pharm.D student at Chandigarh Group of Colleges, deeply passionate about her field and eager to make significant contributions. She actively participates in various projects and conferences, showcasing her dedication and enthusiasm. Beyond academics, she engages in extracurricular activities, fostering a well-rounded personality. Her commitment to the pharmaceutical sciences drives her to excel and innovate, aiming to make a positive impact in the healthcare industry.



Johannes Bonatti

University of Pittsburgh Department of Cardiothoracic Surgery and UPMC Heart and Vascular Institute, Pittsburgh, PA, USA

How robotic technology will shape the future of minimally invasive cardiac surgery

Robotic techniques have been used in cardiac surgery since the late 1990s. After an initial hype other surgical disciplines have taken up the technology with more enthusiasm and have given significant input for further development of robotic hard- and software as well as into refinement of surgical techniques. In cardiac surgery robotics has mainly been applied for coronary bypass grafting and mitral valve repair. Recently introduced procedures include aortic valve replacement, septal myectomy, and even left ventricular assist device implantation as well as heart and lung transplantation. Combination procedures are current new frontiers. The near future will be significantly influenced by the appearance of new surgical robots. New technological concepts such as modular robotic systems with individual robotic arms on separate columns around the operating table, open consoles with flat screens, new versions of joysticks to operate the robotic instruments, tactile feedback, and options for telesurgery have been introduced. Robots not only serve as surgical tools but also as analytic devices which can monitor the movements of the surgeon. Automated Performance Metrics (APMs) can be recorded and correlated with patient outcome. This will help defining benchmarks and support surgical quality control and learning. Lastly telesurgery has become reality and remote coronary bypass grafting has already been carried out. Robotics will certainly become an integral part of our specialty.

Biography

Johannes Bonatti has performed robotic cardiac surgery since 2001 and has carried out 1000+ cases. He introduced and ran robotic heart surgery programs at Innsbruck Medical University, the University of Maryland, the Cleveland Clinic in Ohio, the Cleveland Clinic Abu Dhabi, and at UPMC. He held academic and leadership positions at these institutions and performed several “world firsts” including the first successful quadruple totally endoscopic coronary artery bypass grafting procedure in robotic fashion. He is currently serving on the task force for robotic cardiac surgery at the STS and leads the corresponding working group at the ISMICS.



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Acute cellular rejection in a heart transplant patient-the challenges

Hear transplant rejection remains a significant challenge, threatening the long-term success of heart transplantation. Acute cellular rejection (ACR) is most common type and occurs within first year of transplant. Common cause of ACR is decreased blood level of immunosuppressants making the recipient's T-cells active against the allograft. ACR can also occur without any identifiable cause and many risk factors like genetic mismatch, cytomegalovirus infection, donor coronary artery disease etc have been described. We describe a patient who developed ACR 5months post-heart transplant and he recovered after a long course of treatment.

A 45year male diagnosed with endstage heart failure due to valvular cardiomyopathy. He underwent heart transplantation within a year of enlistment and recovered slowly with a longer hospital stay due to bleeding, transfusions, lung injury, uncontrolled diabetes, infection. Donor and recipient both were cytomegalovirus negative. The patient was discharged home with triple maintenance immunosuppressive therapy 6weeks after transplantation. On 5th month post-transplant, he presented with dyspepsia, bloating sensation and breathing difficulty. Clinical examination did not reveal any feature of heart failure, blood pressure was 108/84mmHg, SpO₂ 100%. ECG showed normal sinus rhythm @98/min heart rate, Echocardiography revealed dilated heart, global hypokinesia, mild MR and moderate TR with RVSP=25+RAP, no PE. His blood tacrolimus level was low @2.87ng/ml, NT pro BNP was 35000pg/ml, Troponin I-128pg/ml. Endomyocardial biopsy revealed grade 2 ACR (2R ISHLT 2004).

The patient was admitted to intensive care unit, invasive monitorings started, his hemodynamics was supported with dobutamine and adrenaline infusion. Methyl prednisolone pulse therapy @20mg/kg/day was initiated, tacrolimus dose was increased and mycophenolate continued. Frusemide infusion was started as urine output decreased, blood sugar was controlled with insulin infusion. The patient developed bilateral severe pleural effusion, became dyspneic and required oxygen supplementation with positive airway pressure. The patient did not improve with pulse steroid and escalation of tacrolimus levels even after 2weeks, so we administered Anti Thymocyte Globulin (ATG). 1week after completing the course of ATG the heart started recovering. Inotropes were tapered; tacrolimus dose adjusted with target level 10ng/ml and prednisolone was tapered @ 5mg/week till 5mg daily dose. The heart recovered and the patient was discharged home after 3 months with diuretics. We could avoid mechanical circulatory support, but this ACR was very resistant to treatment.



Nidhi Puri

AIIMS Bilaspur, India

Internal thoracic artery: Anatomical variations to be considered for bilateral harvesting

The Internal Thoracic Artery (ITA) is a preferred conduit in Coronary Artery Bypass Graft (CABG) surgery due to its predictable intrathoracic course, proximity to the heart, and excellent long-term patency. Bilateral ITA (BITA) grafting has demonstrated superior long-term outcomes compared to single ITA use, with increased survival benefits in middle-aged patients extending up to 20 years postoperatively, while up to 10 years in older patients. Given the frequent bilateral use, understanding the variations in surgical anatomy of the ITA is essential.

A study was conducted on 100 adult cadavers to assess anatomical variations. After removing the sternocostal wall and fixing in 10% formalin, detailed dissections were performed. The ITA originated from a common trunk with other subclavian branches in 12% of right and 4% of left cases. The mean length of the right ITA was 20.15 ± 1.22 cm and the left 19.83 ± 1.66 cm. In 28% of cases, BITA terminated at the 6th intercostal space. Three patterns of sternal branch origin were identified: Group I—from a common trunk on both sides (24%), Group II – from a common branch on one side only (54%), and Group III—directly from ITA bilaterally (22%). The phrenic nerve crossed anterior to the ITA on both sides in 52% of cases, posteriorly in 14%, and varied in the remainder.

These anatomical variations, particularly concerning phrenic nerve course, bifurcation level, and sternal blood supply, should be considered during BITA harvesting to minimize risks such as sternal dehiscence and postoperative phrenic nerve palsy.

Biography

Prof (Dr) Nidhi Puri is working as Dean (Examination) and Professor & HOD, Department of Anatomy, AIIMS Bilaspur, Himachal Pradesh. She has 32 years of teaching experience and has been on the post of professor for the last 14 years. She has 40 publications, including 2 chapters in an edited book and has published one patent. She has supervised thesis for 09 MD students and 12 MSc (Anatomy) students. She has presented papers in various national and international conferences and has organized various academic events. She is a founder member of Cardiomersion.

**Nikita Goyal**

NHS, United Kingdom

Audit on the clinical use of procalcitonin: A comparison of practice between emergency department and acute medicine (McGill) doctors

Introduction: Bacterial infection leads to the activation of CALC 1 gene and production of PCT in all parenchymal tissues in response to bacterial infection.

Most tissues, except the thyroid gland C-cells and some neuro-endocrine tissues, lack the ability to cleave PCT to its mature form, calcitonin, leading to accumulation of PCT during acute bacterial infection. This characteristic makes PCT a more specific marker for bacterial infection.

Objectives:

- To assess knowledge and use of Procalcitonin (PCT) among doctors in the emergency and acute medicine department in Royal Hampshire County Hospital (RHCH), Winchester
- To compare the rationale for PCT testing between the emergency and acute medicine (McGill) departments' doctors

Conclusion: Sepsis remains an important cause of morbidity and mortality in the UK. The need for early broad-spectrum antibiotics should be balanced against the risks of antibiotics-associated health problems and rising anti-microbial resistance. Rational use of PCT, a specific biochemical marker for bacterial and fungal infections, could help improve antibiotics stewardship.

Discussion: On comparison between the doctors of ED and AMU certain discrepancies were found and new trust guidelines considering both the departments need to be created.



Somya Puri

Medical Officer Co-ordinator of Yung Forum, Cardiomersion, India

Peripheral artery disease: Unveiling its impact on cardiovascular events and outcomes

Peripheral Artery Disease (PAD) is a prevalent but underrecognized atherosclerotic disease that carries a powerful prognostic weight. Lower extremity PAD affects an estimated 8.5 million Americans over age 40 and roughly 202 million people globally. In India, PAD prevalence is similarly high (roughly 7–26% of adults), yet both awareness and diagnosis lag behind the disease's true burden. Crucially, PAD is more than a limb disorder – it signifies extensive systemic atherosclerosis and confers a much higher risk of myocardial infarction, stroke, and death. Patients with PAD often have equivalent or greater cardiovascular risk than those with coronary disease, even though dramatic limb events like Acute Limb Ischemia (ALI) occur infrequently.

Screening and diagnosis guidelines emphasize targeted detection: Clinicians should evaluate at-risk patients (eg, age ≥ 65 or younger with diabetes, smoking, or known atherosclerotic disease) and use the Ankle-Brachial Index (ABI) to confirm PAD. Physical exam (leg pulse palpation, bruits, foot inspection) complements history, as many PAD patients have atypical symptoms or are asymptomatic. Management focuses on aggressive risk factor reduction and functional improvement. All PAD patients should receive guideline-directed medical therapy: Statin therapy is indicated for every patient and antiplatelet therapy (aspirin or clopidogrel) is class I recommended to reduce vascular events. A supervised exercise program is strongly recommended (Class I) to improve walking ability. Cilostazol may be used to improve claudication symptoms. Revascularization (endovascular or surgical) is reserved for lifestyle-limiting claudication or critical limb ischemia, managed within multidisciplinary vascular teams.

Recent evidence reinforces these principles globally. Indian experts highlight that many PAD cases remain asymptomatic and underdiagnosed, advocating active case-finding (eg, “PAD clinics”) and rigorous risk control. Implementing AHA/ACC recommendations together with local epidemiology can improve outcomes: Early PAD detection prompts timely statin initiation, blood pressure and diabetes control, and antithrombotic therapy, reducing both limb complications and cardiovascular mortality.

Biography

Dr. Somya Puri has completed her MBBS from MM MEDICAL COLLEGE AND HOSPITAL, Solan, India. Presently she is working as Medical Officer co-ordinator of young forum, Cardiomersion, India. She has also worked as a Non-Academic Junior Resident in the Department of Cardiology at AIIMS BILASPUR, India. She has five publications including an ICMR-funded research project. She has given an oral presentation and also moderated a session at the International Heart Congress 2022. She has also won 1st prize in poster presentation in a CME on suicide “Creating Hope Through Action”. She has also presented at the “International Heart Conference” held in Singapore in 2018 and has moderated one session each at international heart conferences in Singapore and Dubai in 2018 and 2015 respectively. She has also attended international heart conferences held in Japan in the years 2013 and 2014.

**Surabhi Puri**

AIIMS, India

Heart-smart workplaces: Workplace-based interventions for cardiovascular risk reduction

Background: Cardiovascular Diseases (CVDs) remain the leading global cause of mortality, with a significant proportion attributable to modifiable behavioral and metabolic risk factors. In India, the rising burden of CVD among working-age adults highlights the need for preventive strategies within occupational settings, where individuals spend over one-third of their waking hours.

Objective: To synthesize evidence on workplace-based interventions for reducing cardiovascular risk, focusing on integrated models involving early risk identification, behavior change, policy support, and mHealth technologies.

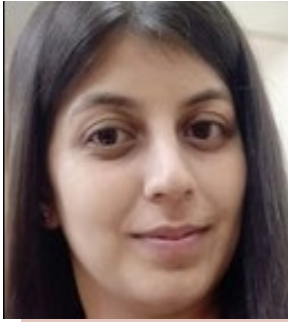
Methodology: A narrative synthesis of peer-reviewed trials, systematic reviews, and programmatic evaluations was conducted using databases including PubMed and Cochrane. Interventions were categorized by core components: Screening, behavioral change, organizational policies, and digital integration.

Results: Multicomponent workplace programs led to significant reductions in cardiovascular risk parameters. A cluster-RCT in Kerala among 4,000 workers reported reductions in systolic BP (−2.7 mmHg), total cholesterol (−7.6 mg/dL), and waist circumference (−2.1 cm). Meta-analyses showed 6–12% reductions in smoking and 15–20% increases in physical activity adherence. mHealth interventions, including SMS nudges and fitness apps, improved step counts by 22% and reduced stress by 13% in a 12-week Indian trial. Early risk identification through biometric screening combined with validated risk scores improved detection of high-risk individuals by up to 30%. Organizational support, including healthy cafeteria policies and scheduled physical activity breaks, enhanced engagement and sustainability.

Conclusion: Workplace-based interventions offer an effective platform for CVD risk reduction. Programs combining behavioral, policy, and digital strategies show measurable health benefits and scalable potential. Such interventions can meaningfully contribute to national NCD control targets and workplace wellness policies.

Biography

Dr. Surabhi Puri graduated from Dayanand Medical College and Hospital, Ludhiana, Punjab (2018), and did her post-graduation in Community Medicine at All India Institute of Medical Sciences, New Delhi (2021). She is currently working as a Senior Resident at All India Institute of Medical Sciences, New Delhi since 2021. She was awarded the second prize for her research project on Cardiac risk in young females at the 1st National Undergraduate Medical Conference 2016 at Ludhiana. She represented the north zone at the 29th National Indian Academy for Paediatrics Quiz for undergraduates (2016). She has published articles and presented papers at various national and international conferences in the field of preventive cardiology and anemia.

**Vinakshi Devi^{1*}, Dr. Deepak Puri²**¹Max Super Specialty Hospital, India²Global Chairman Cardiomersion, India**Follow up of ischemic heart failure patients after surgical revascularization**

Ischemic Heart Failure (IHF), primarily resulting from Coronary Artery Disease, remains a significant cause of morbidity and mortality globally. Surgical revascularization, particularly off-pump Coronary Artery Bypass Grafting (CABG), is a cornerstone treatment for patients with viable myocardium and severe left ventricular dysfunction. While the peri-operative outcomes of CABG are well-documented, long-term follow-up remains critical in determining the overall success and prognosis of patients with IHF post-revascularization.

This study aims to evaluate the clinical outcomes, functional status, ventricular function, and survival of ischemic heart failure patients following surgical revascularization, emphasizing the importance of structured follow-up protocols.

Methods: A prospective and/or retrospective analysis was conducted involving patients with documented ischemic cardiomyopathy who underwent CABG. Follow-up data included Electrocardiography Assessments, Mitral Regurgitation, New York Heart Association (NYHA) classification, quality of life indices, incidence of recurrent angina, re-hospitalization rates, and long-term survival. Additional parameters included medication adherence, lifestyle modification, subsequently follow-ups.

Results: Follow-up data revealed a significant improvement in Left Ventricular Ejection Fraction (LVEF) and NYHA functional class in most patients. Mortality and re-hospitalization rates were reduced among those who adhered to structured follow-up programs and optimized medical therapy. Cardiac rehabilitation was associated with improved quality of life and reduced incidence of recurrent ischemic events. Patient lost in follow up had poor compliance with Guidelines directed therapy usually came back with decompensated heart failure.

Conclusion: Long-term follow-up after surgical revascularization in ischemic heart failure patients is essential to monitor ventricular function, optimize medical therapy, and improve survival and quality of life. Multidisciplinary follow-up care, including cardiology, rehabilitation, and primary care services, plays a pivotal role in enhancing patient outcomes post-CABG. Regular imaging, functional assessment, and lifestyle counseling should be integrated into post-operative care to maximize the benefits of revascularization

Biography

Vinakshi Devi completed Nursing from DR. RAJENDERA PRASAD GOVERNMENT MEDICAL COLLEGE TANDA at KANGRA HIMACHAL PRADESH and subsequently completed training as Physician Assistant in Cardiac Sciences at Max Super specialty Hospital Mohali India. Currently working as Physician Assistant in Cardiomyopathy Cardiac team. She handles pre-operative and post-operative follow-up of patients as well as assists surgical procedures and takes care of Rehabilitation also. Apart from this she is regularly involved in Academics, Camps and research projects and Organised Cardiomyopathy Workshops, Conferences and Health Camps.



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