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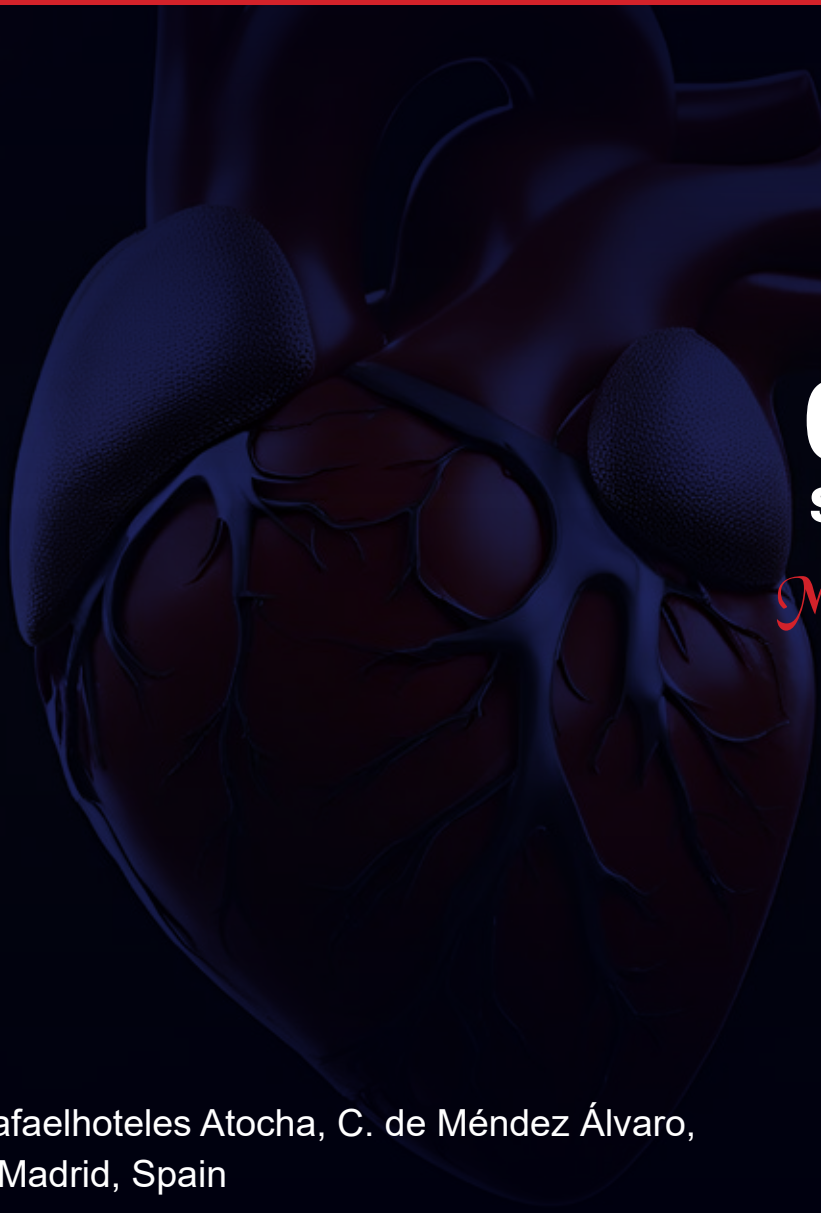
5TH EDITION OF

Cardiology World

CONFERENCE



05-07 SEPTEMBER

Madrid, Spain

Venue: Rafaelhoteles Atocha, C. de Méndez Álvaro, 30, 28045 Madrid, Spain

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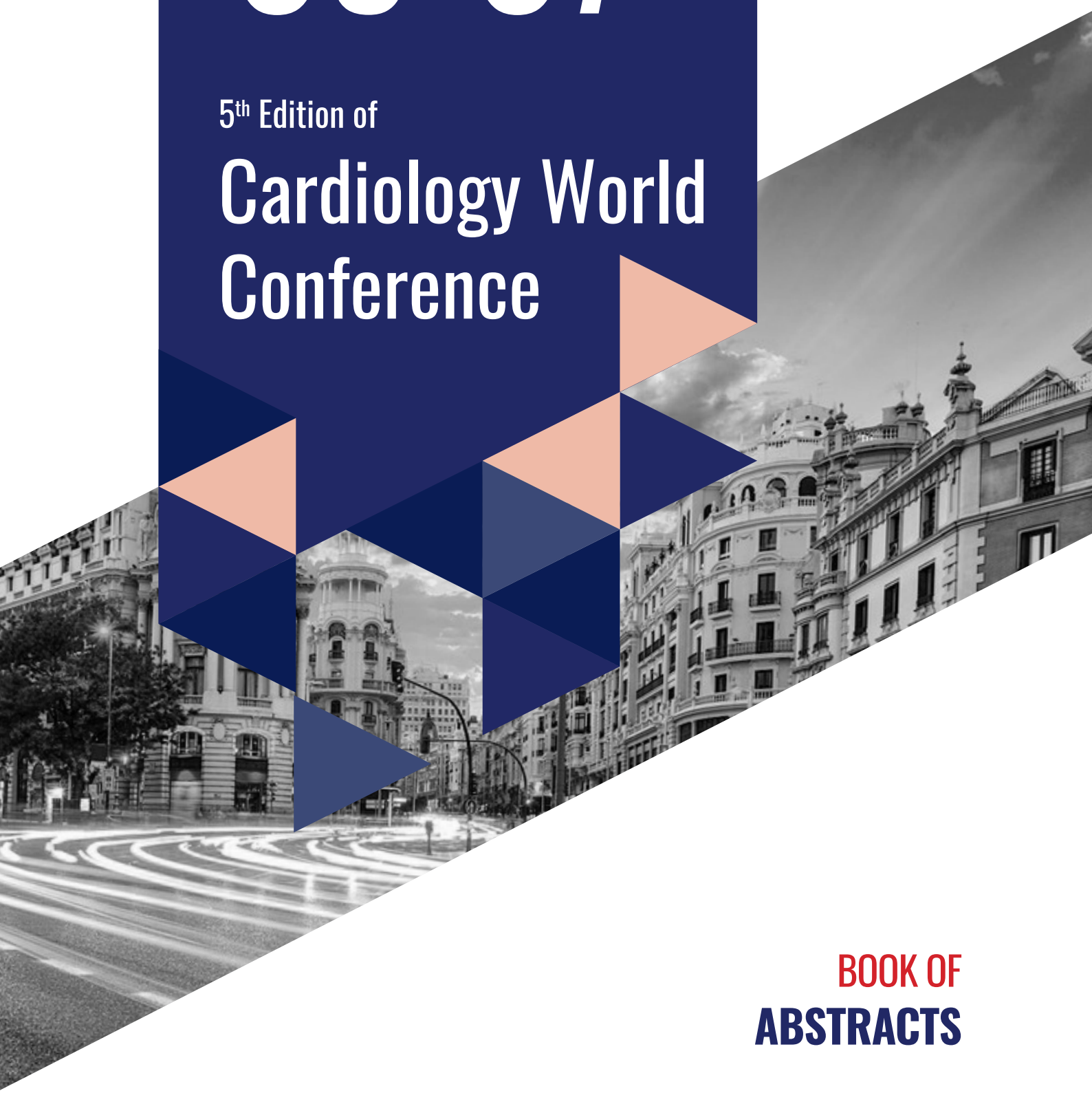

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Yong Xiao Wang
Albany Medical Center, United States

Thank You All...

Speakers

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FMIC Hospital Kabul, Afghanistan

Agustin Joison
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Alexandra Murtazaliyeva
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Ansh Goswami
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Vivekananda Hospital, India

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Shakir Khan
University Hospital Southampton, United Kingdom

Zakir Khan
University Hospital Southampton, United Kingdom

Thank You All...

Welcome Message

Naranjan S Dhalla

St. Boniface Hospital Albrechtsen Research Centre, Canada

I am most pleased to invite you to participate in a well-thought out and well planned cardiology Conference Cardio 2024 to be held in Madrid, Spain during September 5-7, 2024. The Scientific program for this meeting will contain several sessions and invited lectures by some high profile speakers. The conference will focus on discussions and new developments in the area of pathogenesis and therapeutics of heart failure, myocardial infarction, arrhythmias and ischemic heart disease. All residents and fellows as well as academic cardiologists and scientific investigators in the field of cardiovascular medicine will have excellent opportunity of learning new information and improve their skills for the treatment of cardiovascular disease.

Welcome Message

Robert J Chilton

UT Health San Antonio, United States

Welcome! I am thrilled to share the latest advancements in heart failure treatment with you, particularly focusing on sotagliflozin, a groundbreaking therapy offering new hope to patients. Sotagliflozin is a dual SGLT1 and SGLT2 inhibitor originally developed for diabetes management. However, recent studies have unveiled its significant benefits in treating heart failure, even in patients without diabetes. This dual inhibition mechanism not only lowers blood glucose levels but also has profound effects on heart health. Clinical trials have demonstrated that sotagliflozin significantly reduces the risk of cardiovascular death and hospitalization due to heart failure. Its ability to promote natriuresis (sodium excretion) and reduce cardiac workload helps alleviate symptoms and improve the quality of life for heart failure patients. Additionally, sotagliflozin's impact on reducing body weight and blood pressure further supports its role in comprehensive heart failure management. One of the most exciting aspects of sotagliflozin is its effectiveness across a broad spectrum of heart failure patients, including those with preserved and reduced ejection fractions. This versatility makes it a valuable addition to the current treatment options, offering a new therapeutic avenue for patients who may not have responded well to existing therapies. As we continue to explore and understand the full potential of sotagliflozin, it represents a significant step forward in our fight against heart failure. I am confident that this innovative treatment will play a crucial role in improving patient outcomes and enhancing the quality of care.

Thank you for your attention, and I look forward to the fruitful discussions ahead.

Welcome Message

Yong-Xiao Wang

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

Dear Conference Visitors:

As the Conference Organizing Committee Member and Keynote Speaker, I am very honored to write this welcome message.

The current conference, 5th Edition of Cardiology World Conference, aims to address the global challenge posed by cardiovascular disease, a leading cause of approximately 15 million annual fatalities worldwide. Clearly, the upcoming Cardiology World Conference is an annual collaboration that brings together leading researchers, scientists, clinicians, and industry professionals from cardiovascular health and disease fields around the world. The conference will include outstanding keynote sessions, plenary lectures, invited speeches, research presentations, technical demonstrations, and panel discussions around the world. All the planned latest cutting-edge presentations and demonstrations will highlight the recent past, current, and future cardiovascular research, explore innovative technologies in cardiovascular disease treatment, and shed light on advancements in managing cardiovascular diseases. Furthermore, all participants including prominent researchers, cardiologists, cardio-thoracic surgeons, healthcare professionals, professors, scientists, students, nurses, and business professionals can gain valuable perspectives from diverse corners of the globe, accelerate breakthroughs in science, trials, and innovations within the realm of cardiology, share their latest research findings, and energize innovative developments and discoveries to unveil breakthroughs and shape future various objectives.

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

Welcome Message

Shetuan Zhang

Department of Biomedical and Molecular Sciences, Queen's University, Kingston, Ontario, Canada

Dear colleagues and participants, as a scientific committee member and keynote speaker, it gives me great honor and pleasure to write this welcome note. Cardiovascular disease remains the main cause of morbidity and mortality globally. With the advancement of genetic and cell biology in life sciences as well as new technologies, numerous cutting-edge research findings are made to improve our understanding of the underlying molecular mechanisms, treatment, and prevention of cardiovascular disease. More excitingly, interactions among vast international researchers are likely to further spark novel ideas, remind potential issues, and find solutions. The Cardiology World Conference, Cardio 2024, that provides a major platform for keynote, plenary talks and poster presentations with both academic and industrial scientific sessions, offers exactly such an outstanding opportunity. I enthusiastically look forward to interacting with you at this exciting international conference for exchanges of ideas and knowledge to advance cardiovascular research and care.

Welcome Message

Kumar Ponniah

Wolfson Terry Heart Institute, United States

I am excited and honored to be part of the 5th Cardiology World Congress at Madrid. Thank you for the invitation to be a keynote speaker. The conference appears to be a well-balanced conference from basic sciences to advanced technologies in the field of Cardiology. I am impressed by the broad array of speakers and the depth they would bring to the program. It would be a rewarding experience with opportunities to meet other researchers and practitioners from all over the world. This is our first visit to Spain, and we are excited and look forward to learning more about the beautiful country, its rich culture and the people. I am going to be talking about the importance of assessing coronary artery anomalies in children which can have a significant impact on morbidity and mortality. I will discuss the current methodologies available to assess coronary artery abnormalities with a special focus on the role of advanced imaging like CT in the management of such abnormalities in children.

Welcome Message

Prof Stephan Schueler MD, PhD, FRCS

Department of Cardiothoracic Surgery Newcastle upon Tyne Hospitals, United Kingdom

Advanced heart failure is a deadly disease and survival is worse than for breast or prostate cancer. There is a high risk of sudden death. There frequent hospital readmissions and the quality of life is very poor. Heart transplantation at this stage is regarded as the standard in selected patients, however, only a small number of patients have access to donor organs. Early and long-term complications are significant. For quite some time implantable durable left ventricular assist devices have become a realistic alternative. They are available at any given time. There is no early failure of the transplanted heart and no toxic side effects from chronic immunosuppression. The early and long-term outcomes have become excellent. Innovation of technology will lead to further improvement and will simplify the management and will allow a normal quality of life.

Welcome Message

Mekhman N Mamedov

National Research Center for Preventive Medicine, Russia

The beginning of the 21st century has gone down in the history of medicine as a time of globalization and socialization of some chronic diseases. Recently, we also faced a pandemic of a viral infection, which primarily affected patients with cardiovascular diseases in adults. Thus, the comorbidity of cardiovascular diseases and other somatic diseases continues to make a large contribution to the development of complications and mortality among adults in most countries. Therefore, the introduction of innovative technologies along with prevention strategies at different levels are an important part of the fight against cardiovascular diseases. The program of the annual conference on cardiology includes current topics on the diagnosis and treatment of cardiac patients. These results of the reports can be useful for both researchers and practitioners. I invite my colleagues to actively participate in the conference

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, Pharmaceutics, 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
CARDIO 2024

Welcome to the **5th Edition of Cardiology World Conference (Cardio 2024)**, taking place in **Madrid, Spain**, and virtually from **September 05-07, 2024**. This year's conference, themed *Advancements in Cardiovascular Interventions: Diagnosis to Regeneration*, unites a global community of researchers, healthcare professionals, and enthusiasts to delve into the latest breakthroughs in cardiology. The conference offers a comprehensive program featuring keynote talks, oral and poster presentations, and interactive discussions.

As you explore this abstract book, you will find a collection of pioneering research and insights that capture the dynamic nature of this year's conference. Each abstract provides a glimpse into the significant advancements and innovative work driving progress in cardiovascular care. Whether you are participating in person or virtually, you will have the opportunity to connect with leading experts and peers, fostering discussions that will shape the future of cardiology. We eagerly anticipate your engagement in this transformative event and the valuable contributions you will bring to the field.

ABOUT
CPD Accreditation

APPROVED PROVIDER #780643

Continuing Professional Development (CPD) credits are valuable for Cardio 2024 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 Cardio 2024 and earning CPD credits can help attendees stay current with the latest developments and advancements in their field.

Networking opportunities: Aquaculture Conference 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 18+ CPD credits.

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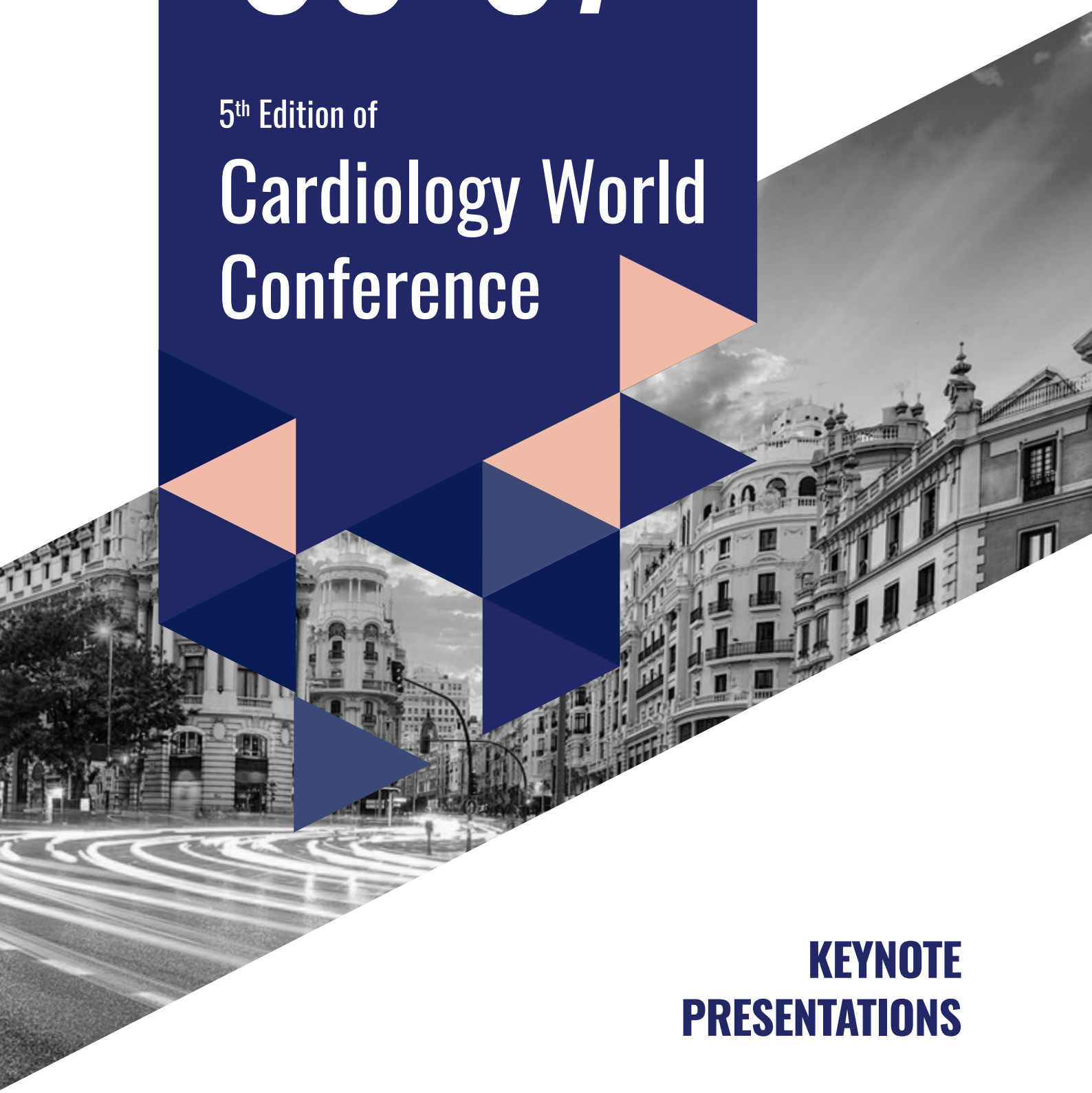


KEYNOTE PRESENTATIONS

Maternal congenital heart disease: Impact on adverse neonatal outcomes

Katherine Bianco

Stanford University, United States

Objective: To assess the association between maternal Congenital Heart Disease (CHD) and adverse neonatal outcomes, focusing on birth weight, gestational age, Apgar scores, and Neonatal Intensive Care Unit (NICU) admissions.

Study Design: A retrospective cohort study spanning 2012-2023, was conducted involving pregnancies affected by maternal cardiac diseases. Exclusion criteria included missing demographic or neonatal outcome data, as well as cases of both CHD and Acquired Heart Disease (AHD). The study groups comprised maternal acquired heart disease (N=208), maternal congenital heart disease (N=202), and pregnancies not complicated by any acquired or congenital cardiac diseases (N=183).

Results: Statistical analysis using T-tests, Chi-Square, and ANOVA revealed significantly greater adverse neonatal outcomes in the cardiac cohort, particularly within the maternal CHD group compared to AHD and healthy cohorts (P-value<0.05). Specifically, infants born to mothers with CHD had lower birth weights, shorter gestational ages, lower Apgar scores, and higher rates of NICU admissions compared to both AHD and healthy pregnancies.

Table 1: Neonatal Outcomes

	Maternal Acquired Heart Disease	Maternal Congenital Heart Disease	No Maternal Heart Disease	P-Value
Pre-term Birth (<37 wk)	45 (21.63)	36 (17.83)	13 (7.1)	0.0003
Gestational Age, wk	37.47 (37.17, 37.76)*	37.67 (37.38, 37.97)*	38.89 (37.57, 39.20)*	
Birthweight, g	3060.52 (2978.93,3142.12)*	2984.16 (2901.36,3066.96)*	3271.66 (3184.67,3358.65)	
Small for Gestational Age	16 (7.69)	35 (17.33)	19 (10.38)	0.008
Apgar score at 5 minutes <7	2 (0.96)	6 (2.97)	1 (0.55)	0.1336
NICU Admission	31 (14.9)	38 (18.81)	11 (6.01)	0.0009
Mechanical Ventilation During Hospitalization	14 (6.73)	18 (8.91)	3 (1.63)	0.0041
Length of Initial Hospitalization	6.52 (4.87,8.18)* 0	6.55 (4.87,8.24)*	2.97 (1.21,4.74)	
Death before Discharge	0 (0)	4 (1.98)	1 (0.55)	0.0636

Cells show n(%) or mean (95% CI)

*P-value<0.05 versus Neither, corrected for multiple comparisons using Bonferroni test.

Conclusions: Maternal CHDs are associated with an increased risk of adverse neonatal outcomes, highlighting the critical importance of monitoring and addressing these risks during prenatal care. The limitations of this study, such as cohort homogeneity, suggest the need for future studies examining outcomes across diverse racial and ethnic groups to better understand the nuances of these associations. Such research can inform targeted interventions and improve outcomes for neonates born to mothers with CHD.

Coronary artery abnormalities in children

Coronary artery abnormalities whether congenital or acquired are an important cause of morbidity and mortality in Children. The current talk will focus on Congenital coronary abnormalities as well acquired coronary disease i.e., Kawasaki disease in children.

Coronary Artery Anomalies (CAA) can result in Sudden Cardiac Death (SCD), and it is the second most common abnormality associated with SCD in young athletes. Affected patients can present with exertional chest pain, exertional syncope and sometimes the first presentation is one of SCD. While the initial screen with an echocardiogram with dedicated coronary artery imaging can delineate the Anomalous Origin of a Coronary Artery (AAOCA) from the wrong aortic sinus, many of the high-risk features needs advanced imaging like Cardiac CT. Cardiac CT can delineate the abnormal origin of the coronary arteries accurately, characterize the ostia, the length of intra mural course etc. In addition, stress imaging with dobutamine (Stress Cardiac MR) can determine areas of perfusion abnormalities in the affected segment. We also share our hospital experience and outcomes for over a decade with coronary artery unroofing surgical procedure for AAOCA.

Kawasaki disease resulting in Coronary Artery Aneurysms are an important cause of morbidity in children. Although rare giant CAA can cause myocardial ischemia, coronary thrombosis and sudden cardiac death. There is a highly effective form of treatment with Intravenous immunoglobulin which has to be given within 10 days of febrile illness and this decreases the incidence of coronary artery aneurysms to less than 5 percent.

Audience Take Away Notes

- Recognize that CAA are an important cause of morbidity and mortality in Children.
- Understand the various clinical manifestations of CAA in children.
- Evaluation of CAA using noninvasive imaging including CT and Cardiac MR
- Evaluation and Management of Coronary Artery Aneurysms secondary to Kawasaki Disease

Kumar Ponniah MD

Wolfson Terry Heart Institute, 841 Prudential Drive, Jacksonville, Florida, USA

Biography

Dr. Ponniah obtained his medical degree from India and completed residency in Pediatrics from India and USA. He completed a fellowship in Pediatric Cardiology from Syracuse, New York and additional advanced training in Pediatric Cardiac MRI from the Texas Childrens hospital. He was an Associate Professor in the Division of Pediatric Cardiology at the Oklahoma University Children's Hospital from 2005 to 2023 and served as Co-Director for Advanced Imaging and the Director for Inpatient Cardiology. He currently serves as the Director of Non-Invasive Imaging at the Wolfson Childrens Hospital, Jacksonville, Florida, since August 2023.

Assessment of the risk of cardiovascular complications in an unorganized adult population in the central region of Russia

The aim of the study is to analyze the risk of Cardiovascular Complications (CVC) in an unorganized population of men and women of working age in the Vladimir region.

Material and Methods: The cross-sectional population-based study included 1,350 men and women aged 30-69 years from 5 cities of the Vladimir region (Vladimir, Kovrov, Murom, Yuryev-Polsky and Vyazniki). The response to the study was 87%. In total, 1174 people completed the study. Of these, 424 were men (36.1%) and 750 women (63.9%). The risk of developing fatal cardiovascular complications was assessed using the European SCORE scale (in the absence of verified CVD). Depending on the total score, the risk was assessed as follows: low risk <1%, moderate risk - from 1% to 5%, high risk - from 5% to 9% and very high risk - 10-14%.

Results: In the examined unorganized population, the high and very high risk of cardiovascular complications according to the European SCORE scale among men was 32%, among women this figure was 2 times lower (15.5%). Thus, the majority of women had low and moderate risk (66.3%), which is 1.5 times more likely than men (43.6%). With comparable rates of hypertension (41.5% in men and 39.9% in women) and hypercholesterolemia (57.8% in men and 55.7% in women), male gender and smoking status (38.4% in men and 9.3% in women) contributed to the total cardiovascular risk values. The frequency of very high risk of cardiovascular complications among men in certain cities of the Vladimir region was 2.5-4 times higher compared to women.

Conclusion: Thus, in 5 cities of the Vladimir region, every third man of working age had a high and very high cardiovascular risk, which is due to the prevalence of smoking, hypercholesterolemia and hypertension. Among women, high and very high cardiovascular risk was 2 times lower (15.5%), while a high incidence of hypercholesterolemia and hypertension was also observed. There is variability in the very high risk of cardiovascular complications in different cities of the Vladimir region.

Keywords: Prevalence, Population, Cardiovascular Risk, SCORE Scale.

Mamedov M.N*, Kutsenko V.A, Drapkina O.M.

National Research Center for Therapy and Preventive Medicine
Moscow, Russia

Biography

Professor Mehman Mamedov is a distinguished cardiologist with over 26 years of experience at the National Medical Research Center for Therapy and Preventive Medicine. He earned his PhD in 1997 and later completed a doctoral thesis on metabolic syndrome. He has authored over 400 scientific works, including 20 monographs and 3 patents, and supervised 10 PhD theses. His research focuses on cardiometabolic disorders and cardiovascular risk. Professor Mamedov is the Editor-in-Chief of the International Heart and Vascular Disease Journal and has received multiple honors for his contributions to medical science.

Antiplatelet agents as a novel therapy of heart failure due to myocardial infarction

Although different antiplatelet agents are used for the prevention of thrombosis and treatment of ischemic heart disease, very little information regarding therapeutic potential of these agents in heart failure is available. We have investigated the effects of some antiplatelet agents such as Sarpogrelate (SAR) and Cilostazol (CIL) treatments on cardiac dysfunction, cardiac remodelling and subcellular defects in heart failure due to myocardial infection. Heart failure in rats was induced by including the coronary artery for 8 weeks and the drug treatment was started 4 weeks after inducing myocardial infarction. Marked depression in cardiac output and ejection fraction as well as increases in heart rate, Left Ventricle (LV) thickness and LV volume in the infarcted animals were attenuated by SAR and CIL. Alterations in myofibril Ca^{2+}-ATPase, as well as myosin isozyme contents and gene expression in the failing heart were reduced by SAR and CIL. Likewise, changes in sarcoplasmic reticular Ca^{2+}-uptake and release activities, Ca^{2+}-pump and Ca^{2+}-release protein content as well as their mRNA levels were attenuated by both drug treatments. These results provide evidence that both SAR and CIL delay the progression of heart failure and improve cardiac function by attenuating cardiac remodeling, subcellular defects and abnormalities in cardiac gene expression. It is suggested that antiplatelet agents may prove to be a viable therapy for the treatment of heart failure.

Naranjan S. Dhalla

Institute of Cardiovascular Sciences, St. Boniface Hospital Albrechtsen Research Centre, Max Rady College of Medicine, University of Manitoba, Winnipeg, Canada

Biography

Naranjan S. Dhalla is the Honorary Life President of the IACS and is serving as a Distinguished Professor at the University of Manitoba and Director of Cardiovascular Developments at the St. Boniface Hospital Albrechtsen Centre, Winnipeg, Manitoba. In his capacity as Secretary General and President of the International Society for Heart Research, he was engaged in promoting the scientific basis of cardiovascular medicine for 25 years. He has been Editor-in-Chief of a major international journal Molecular and Cellular Biochemistry for the past 35 years and is also serving as Executive Director of the International Academy of Cardiovascular Sciences since 1996. He has received 209 honours and awards from all over the world including MD/DSc Honorary Degrees from 6 Institutions and Honorary Professorship from 4 Universities. He is a Fellow of the Royal Society of Canada and was inducted into the Canadian Medical Hall of Fame as well as the Winnipeg Citizen Hall of Fame.

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.

Audience Take Away Notes

- The safe practices while using PFA for atrial fibrillation.
- The audience will become more aware how to achieve more safety for their patient's.
- The talk will share the safety practices.

N. Kumar

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

Biography

Dr. N. Kumar is a European Board Certified Cardiac Electrophysiologist (ECES) with his doctorate thesis in cardiology on Atrial fibrillation ablation from Maastricht University Medical Centre, Netherlands (ranked among the top 50 clinical universities worldwide). He is also a program chair for an International cardiology program and a visiting professor-Cardiology for EDU (Germany, Malta). His primary interest is atrial fibrillation, arrhythmia management, Heart failure, and cardiovascular economics. He 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. He has more than a decade of experience in Cardiology.

Advancements in atherothrombotic disease treatment: Unveiling the potential of SGLT2/1 agents chilton 2024

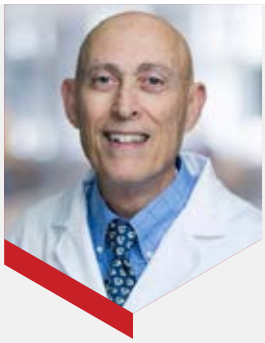
Atherothrombotic disease, characterized by the formation of atherosclerotic plaques leading to arterial thrombosis, is a significant cause of morbidity and mortality worldwide. Despite considerable progress in therapeutic interventions, there remains an unmet need for novel treatments targeting the underlying pathophysiology. Recent research has shed light on the potential role Of Sodium-Glucose Cotransporter 2 and 1 (SGLT2/1) agents in the management of atherothrombotic disease.

SGLT2 inhibitors were initially developed for the management of type 2 diabetes mellitus due to their ability to reduce glucose reabsorption in the renal tubules, thereby promoting glucosuria and lowering blood glucose levels. However, emerging evidence suggests that these agents possess pleiotropic effects beyond glycemic control, including favorable effects on cardiovascular outcomes. Empagliflozin, dapagliflozin, and canagliflozin have demonstrated significant reductions in the risk of major adverse cardiovascular events, particularly cardiovascular death and hospitalization for heart failure, in patients with type 2 diabetes and established cardiovascular disease.

Furthermore, preclinical studies have elucidated the potential antiatherosclerotic effects of SGLT2 inhibitors. These agents have been shown to attenuate vascular inflammation, oxidative stress, and endothelial dysfunction, all of which are critical contributors to the development and progression of atherosclerosis. Additionally, SGLT2 inhibitors exert beneficial effects on traditional cardiovascular risk factors, including blood pressure, body weight, and arterial stiffness, which may further mitigate the risk of atherothrombotic events.

In parallel, the development of dual SGLT1/2 inhibitors has opened new avenues for the treatment of atherothrombotic disease. By inhibiting both SGLT1-mediated glucose and sodium absorption in the intestine and SGLT2-mediated glucose reabsorption in the kidney, these agents offer a comprehensive approach to metabolic modulation. Preclinical studies have demonstrated the potential of dual SGLT1/2 inhibitors in improving lipid profiles, reducing systemic inflammation, and attenuating atherosclerotic plaque formation, thereby providing a novel therapeutic strategy for addressing the multifactorial nature of atherothrombotic disease.

While the cardiovascular benefits of SGLT2/1 agents are promising, several questions remain unanswered. The mechanisms underlying their cardiovascular effects require further elucidation, and ongoing clinical trials will provide valuable insights into their long-term safety and efficacy profiles. Additionally, the optimal patient population and treatment duration for SGLT2/1 inhibitors in the context of atherothrombotic



Robert J Chilton

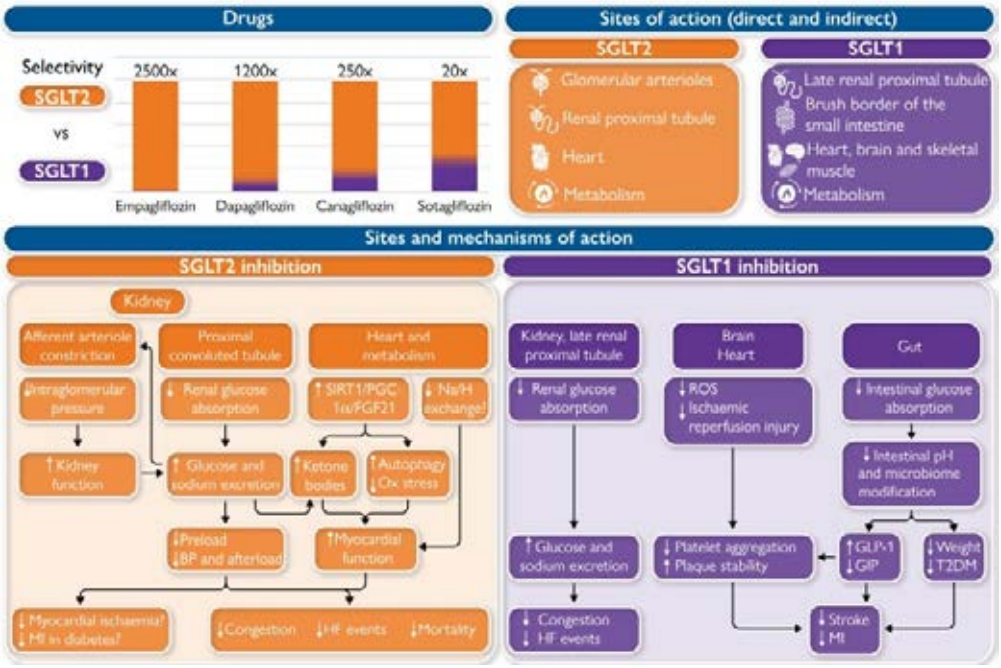
UT Health San Antonio, United States

Biography

Dr. Robert J. Chilton, DO, is a Clinical Professor of Medicine and Director of the Cardiac Catheterization Laboratory at University Hospital and Audie L. Murphy VA Hospital. He also serves as Associate Program Director of the Interventional Cardiology Fellowship Program. A fellow of multiple prestigious medical societies, including the American College of Cardiology and American Heart Association, Dr. Chilton chairs the Electrophysiology Board Examination for the American Osteopathic Association. He earned his DO from the University of Osteopathic Medicine and Surgery in Des Moines, Iowa, and completed his training at Wright-Patterson Air Force Base, the University of Oklahoma Health Science Center, and Wilford Hall USAF Medical Center. Board certified in internal medicine, cardiovascular disease, and electrophysiology, Dr. Chilton has authored numerous publications and received several awards, including the 1994 Outstanding Teacher award from UT San Antonio.

disease warrant further investigation.

In conclusion, SGLT2/1 agents represent a paradigm shift in the management of atherothrombotic disease, offering not only glycemic control but also cardiovascular benefits through their pleiotropic effects. As our understanding of their mechanisms of action continues to evolve, SGLT2/1 inhibitors hold promise as a novel therapeutic strategy for reducing the burden of atherosclerotic cardiovascular disease and improving patient outcomes.



Protecting cardiac potassium channels as a novel strategy to prevent ischemia-associated arrhythmias and sudden cardiac death

The *human Ether-a-go-go–Related Gene* (hERG) encodes the potassium channel Kv11.1 (commonly known as hERG) that conducts the rapidly activating delayed rectifier potassium current (IKr). Normal function of hERG is critical for cardiac repolarization and its dysfunction causes long QT syndrome, arrhythmias, and sudden death. Ischemic heart disease is a leading cause of death and about 50% of these fatalities occur suddenly. Prolongation of the QT interval is commonly seen during cardiac ischemia and is a predictor of sudden death in patients with myocardial infarction. However, it is unclear how cardiac ischemia causes QT prolongation. Using rabbit cardiac ischemic model, cell biology, and electrophysiology techniques, we found that 1) Cardiac ischemia activates and increases various proteases including calpain in the extracellular milieu. 2) Proteases such as proteinase K and calpain selectively cleave hERG channels in the extracellular domain (S5-pore linker) of the channel, separating the channel into two fragments and completely abolishing the channel activity. 3) The scorpion toxin BeKm-1, which binds to the S5-pore linker of hERG, can effectively protect hERG against protease-mediated damage. Since BeKm-1 interferes with the hERG channel function, we created BeKm-1 mutants which have potential to protect hERG without interfering with hERG channel function. In conclusion, hERG is uniquely susceptible to proteases, which may contribute to arrhythmias under conditions such as cardiac ischemia. Protecting hERG channels from proteolytic damage using specific peptides represents a novel strategy to prevent arrhythmia and sudden death in patients with ischemic heart disease.

Shetuan Zhang

Department of Biomedical and Molecular Sciences, Queen's University, Kingston, Ontario, Canada

Biography

Dr. Shetuan Zhang is a full professor with tenure in the Department of Biomedical and Molecular Sciences at Queen's University, Kingston, Ontario, Canada. He is a leading expert in the field of heart research and education. He has made significant contributions to our understanding of cardiac potassium channel dysfunction and its role in cardiac arrhythmias and sudden cardiac death. Specifically, his research has revealed how hypokalemia (a reduction in blood potassium level), abuse of drugs such as cocaine and fentanyl, genetic mutations in potassium channels, as well as other medical conditions such as cardiac ischemia can cause arrhythmias and sudden death. His recognitions include the Career Investigator Award from Heart and Stroke Foundation, Ontario, Canada.

Present state of durable LVAD therapy and ongoing developments

LVAD Therapy has become a safe and successful long-term therapy for patients with advanced heart failure. Off the shelf 24/7 availability allows to treat patients, when necessary, in time. Significant reduction of anticoagulation therapy in recent years has allowed to reduce bleeding and clotting problems to a minimum. Improvements of patient management to a routine level with low complication rates have established durable LVAD therapy as a routine therapy. In contrast to heart transplantation, toxic immunosuppression is not necessary. With ongoing developments in technology including a fully implantable system not requiring a drive line, it will become the new standard for patients with end stage heart failure, and has the potential to reach a pacemaker stage like treatment.

Audience Take Away Notes

- Heart Failure has a worse outcome than cancer. When patients have reached an advanced stage the quality of life is very poor with ongoing symptoms of SOB even at low levels of exercise. Despite advances in medical therapy there is a consistent decline with recurrent hospital readmissions and a miserable death. The overall costs are a big burden on the health care. Durable LVAD therapy has developed into a safe alternative over the last decade.
- Advanced Heart failure Cardiologists/ Heart Failure Nurses

Prof Stephan Schueler MD, PhD, FRCS

Department of Cardiothoracic Surgery Newcastle upon Tyne Hospitals, UK

Biography

Prof S. Schueler is a Consultant Cardiac Surgeon specializing in LVAD therapy. After surgical training in Hannover Medical School he joined the team of the newly founded Berlin Heart Centre. He spent some time at Johns Hopkins Hospital in Baltimore/ USA. In 1995 he was appointed as Professor for Cardiac Surgery in Dresden University and Director of the Dresden Heart Institute. In 2001 he became Consultant Cardiac Surgeon at Newcastle upon Tyne Hospitals/ UK. He is an established opinion leader in the field and has been President in several scientific societies and published more than 250 scientific articles.

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 (100µg/kg) or vehicle. After 2 weeks, hearts were perfused with a voltage-sensitive dye (RH237) and a Ca^{2+} indicator (Rhod-2/AM) to optically map action potentials and Ca^{2+} 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 □-catenin. Rlx-2 suppressed atrial and ventricular arrythmia 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

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

Biography

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. His lab and clinical work has been focused on the study of physiology and pathophysiology of the naturally occurring peptide hormone human relaxin-2. He 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.

Advanced molecular and cellular mechanisms for pulmonary hypertension

Pulmonary Hypertension (PH) is a common and devastating lung disease. The current primary interventions for this disease are to use non-specific vasodilators, but patients do not always respond well to these non-specific vasodilators. Voltage-dependent potassium channels and store-operated calcium channels may increase intracellular Calcium Concentration ($[Ca^{2+}]i$) in Pulmonary Arterial Smooth Muscle Cells (PASMCs) to mediate the development of PH; however, experimental findings are uncertain. In a series of studies, we have explored the potential important role of Ryanodine Receptor 2 (RyR2) Ca^{2+} release channel in PH and its inhibition as therapeutic strategies for this 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 PA vasoconstriction, remodeling, and ultimately hypertension. Moreover, the increased RISP-dependent ROS can also cause DNA damage to activate Ataxia Telangiectasia Mutated (ATM) kinase, phosphorylate Checkpoint Kinases 2 (Chk2), and cause cell proliferation in PASMCs, leading to PA remodeling and hypertension. Our results further indicate that specific pharmacological and genetic RISP, RyR2, FKBP12.6 dissociation, ATM, and Chk2 inhibition may become specific and effective treatment options for PH and other relevant vascular diseases.

Audience Take Away Notes

- Our current presentation will greatly help the audience to create their future research directions.
- The finding presented may significantly assist the audience to develop novel preventive and therapeutic strategies for PH and other relevant pulmonary diseases.
- Our research could also be used by other investigators to expand their research and/or teaching.

Yong-Xiao Wang

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

Biography

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 at Wannan Medical University, PhD at Fourth Military Medical University, and postdoctoral training at Technology University of Munich as well as University of Pennsylvania. He 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: 17.694), Antioxid Redox Signal (7.675), Proc Natl Acad Sci USA (11.205), Nature (69.504), Circ Res (23.218), 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.

BOOK OF ABSTRACTS

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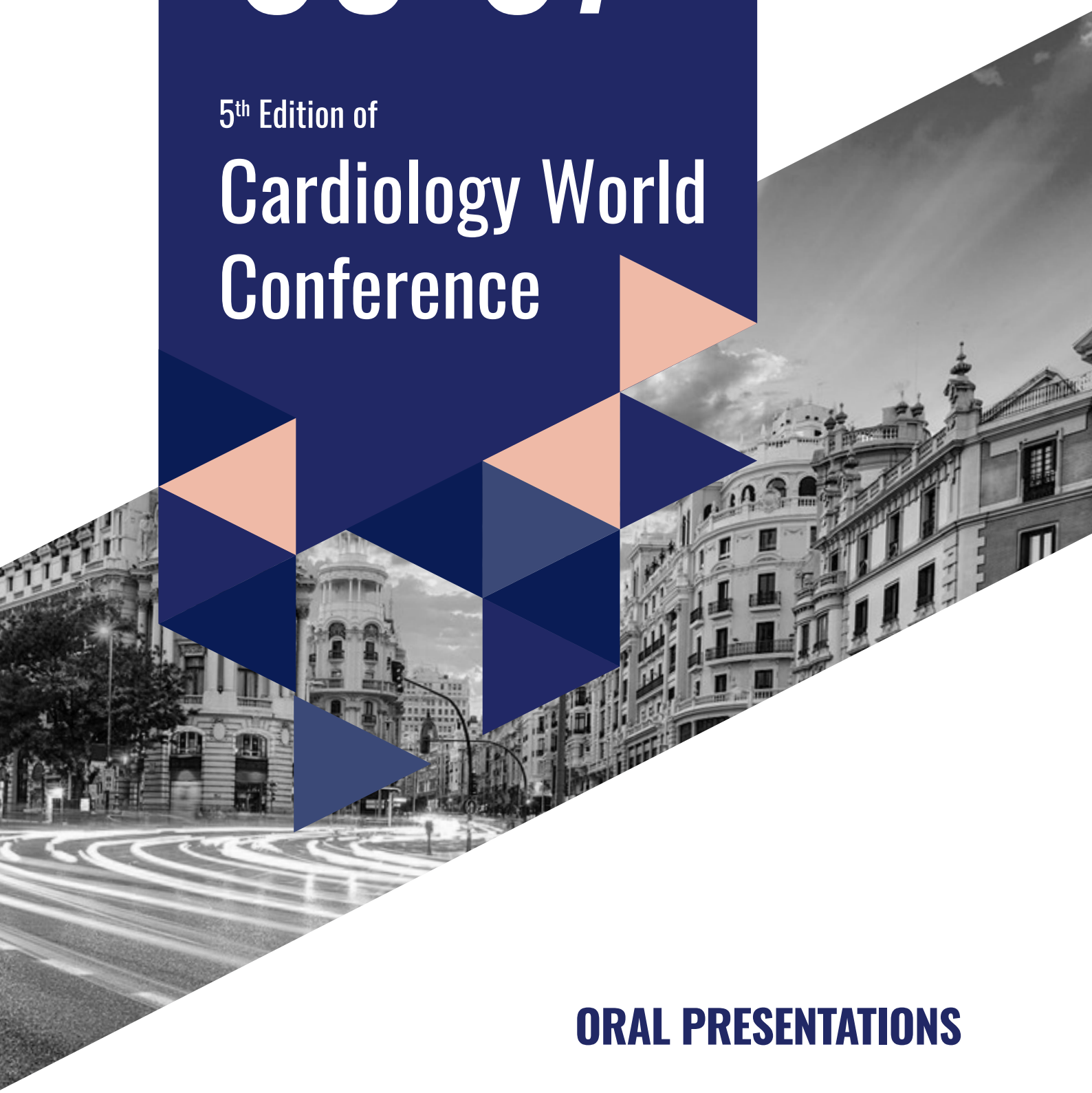


ORAL PRESENTATIONS

Abdul Ghafoor Zarmalwa[1]*, Pan Xiangbin[2], Hu Haibo[2]

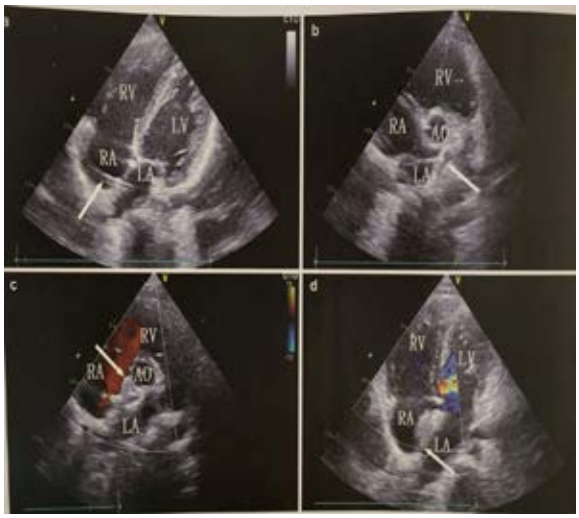
[1]MD paktia medical university, Cardiology department of French medical institute of mother and children, cardiology department of kausar hospital, Kabul, Afghanistan

[2]Department of Structural Heart Disease, National Center for Cardiovascular Disease, China & Fuwai Hospital, Chinese Academy of Medical Sciences & Peking Union Medical College, Beijing, China

Echocardiography guided percutaneous closure of patent foramen ovale with biodegradable device

PFO is one of the most common congenital heart diseases and fluoroscopic percutaneous closure devices based on non-degradable alloys have been widely used in clinical application and saved numerous patients but some developed countries using biodegradable closure devices under fluoroscopy and may offer some advantages such as fewer complications, acceptable for biocompatibility and particularly temporary existence and later on convert to a native tissue by endothelization, In Fuwai hospital Chinese academy of medical science, we used degradable device for PFO closure without fluoroscopy (echocardiography guided).

A 48 years old woman had headache 3 years ago her brain MRI showed cerebral infarction, TEE showed PFO but no history of pneumonia, heart failure, cyanosis and strokes. TEE shows the middle part of Intra Atrial Septum bulge toward right Atrium With PFO separated obliquely like a tunnel with a length about 18mm and width of 2.6 mm but otherwise normal chambers and valves function.34mm×34mm biodegradable device (Lepu Medical Technology, Beijing, China) selected for closure. Through Trans-femoral access PFO successfully closed, there were no residual shunt and AV valves functioning well on post procedure echocardiography. Patient shift to the ward and after two days patient discharged with stable condition. The procedure is done under simple echocardiographic guidance without fluoroscopy. The Pan (Percutaneous and non-fluoroscopy procedure is safe and economical, Pan Procedure not only protect patients from radiation it can also protect from contrast worse effects on the kidney and allergy to contrast.



This study conducted with approval from the ethic committee of Fuwai hospital Chinese academy of medical sciences and national center for cardiovascular center, written informed consent to publish the clinical details.

Keywords: PFO, Percutaneous, Echocardiography Guided, Biodegradable Device.

Biography

Abdul Ghafoor zarmalwal, basically he from Afghanistan, graduated from nijaat Ali higher secondary school in 2008 AD, Abdul Ghafoor have completed my higher education (MD) from paktia medical government university in 2015 AD, after that Abdul Ghafoor have completed my specialization in general cardiology department in FMIC hospital Kabul, Afghanistan in 2021 AD. During residency Abdul Ghafoor have completed short courses of proposal writing,epidemiology and research, Abdul Ghafoor have also done short term diploma in ultrasound and Public health in Peshawar, Pakistan. Currently Abdul Ghafoor working as a cardiologist in tertiary hospital kausar curative hospital. During residency Abdul Ghafoor have completed thesis research on (recovery of left ventricle dysfunction after PCI in STEMI patients within 12 hours of its onset)it is first study on this topic in our country.

Agustin Joison[1]*, Raúl Barcudi[2]

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Study residual cardiovascular risk of ApoB, HDL-C LDL-C CRP and Lpa in ischemic and non ischemic heart disease

Introduction: An understanding of the association between Apolipoprotein B (Apo-B) and CRP (C-reactive protein) in the development of residual cardiovascular risk is very important when comparing it with atherogenic lipoproteins such as HDL-cholesterol, LDL-cholesterol. Apolipoprotein Apo-B and Lpa (lipoprotein pa) were better predictors of cardiovascular desease than total cholesterol, LDL cholesterol, and non-HDL cholesterol.

Method: 24 patients with and without ischemic heart disease were studied to evaluate residual cardiovascular risk. For this, the levels of apoliprotein B, HDL-C, LDL-C, Lpa and CRP were analyzed and compared. Negative values indicate low residual cardiovascular risk index. Positive values indicate low residual cardiovascular risk index.

Results: Lpa levels showed higher residual risk in patients with ischemic heart disease respect non ischemic heart disease 0,88±0,44 vs -0,79±0,013 ($p<0.05$). But no differences were found regarding ApoB 0.76±0.44 vs 0.31±0.41 ($p>005$). LDL-Col levels showed higher residual risk in ischemic heart disease respect non ichemic heart disease 1,32±0,46 vs-0,66±0,13 ($p<0.05$). CRP values showed higher residual risk in ischemic heart disease respect non ichemic heart disease 0,79±0,48 vs-0,44±0,21 ($p<0.05$). In ischemic heart disease, the residual risk is higher when measuring Lpa respect to LDL-C 0,88±0,44 vs-0,66±0,13 ($p<0.05$).

Conclusion: Lipoprotein a and C-reactive protein were shown to be more efficient in the evaluation of residual risk in coronary ischemic disease.

Biography

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

Murtazaliyeva A.V[1]*, Svyatova G.S[1], Miyerbekov Y.M[2], Berezina G.M[1], Girfanova A.R[1], Tuleutayev R.M[3], Nurbay Zh.N[3], Eset M.S[1], Imammyrzayev U.E[2]

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[2]JSC National scientific center of surgery, named after A.N. Syzganov, Almaty, Kazakhstan
[3]JSC Scientific Research Institute of Cardiology and Internal Illnesses, Almaty, Kazakhstan

Frequencies of genes polymorphisms associated with warfarin dosage in the Kazakh population

Introduction: Statistics show that about 10,000 open heart surgeries are performed in Kazakhstan, with more than 3,000 patients with acquired heart defects. Warfarin is the primary oral anticoagulant to prevent complications after surgery in Kazakhstan. Most studies indicate that the dosage of warfarin, considering the genotype, increases the safety of anticoagulant therapy, reduces side effects, and provides a stable therapeutic dose and the effectiveness of therapy.

Objectives: The study aims to investigate the frequency of minor alleles of CYP2C9 *2 (rs1799853), *3 (rs1057910), *5 (rs28371686) and *6 (rs9332131), CYP2C19 (rs3814637), VKORC1 (rs9934438), CYP4F2 (rs2108622), and GGCX (rs11676382) genes in the Kazakh population. This research will be conducted in an ethnically homogeneous population of Kazakhs and compared with previously studied populations worldwide for a comprehensive understanding.

Methods: The study was based on the genomic database of 1900 conditionally healthy individuals of Kazakh nationality. These individuals were genotyped using the Illumina OmniChip 2.5, which assessed approximately 2.5 million SNPs at the Iceland Genomic Center DECODE. This research was part of the InterPregGen project under the 7th EU Framework Program, the Grant Agreement number 282540; AP19677439 Pharmacogenetics of indirect-acting anticoagulants in patients with heart surgery – Kazakhstan state registration number 0123PK01103.

Results: The frequency of minor alleles rs1799853 CYP2C9*2 gene (3.5%) and rs1057910 CYP2C9*3 gene (6.9%) in Kazakhs are intermediate compared with European and Asian populations. However, the previous GWAS studies have been inconsistent, which indicates that genetic markers are not universally applicable for warfarin dosing across different ethnic populations. Therefore, it is crucial to replicate these findings in each specific ethnic population.

The frequency of the minor allele of the European rs2108622 CYP4F2 gene in Kazakhs is comparable with indicators in Europe ($p>0.05$), and revealed an intermediate frequency between the populations of East and South Asia ($p<0.05$).

The frequency of the Asian minor allele rs11676382 GGCX gene is higher in the Kazakh population - 14.4%, compared to European and Asian populations. We suggest that SNP can affect warfarin dosage in people of Kazakh nationality.

In the Kazakh population, the frequency of the minor allele of rs9923231 of the VKORC1 gene is 28.8%, which is significantly higher ($p<0.001$) than in South Asian populations such as Bangladesh (15.7%), India (17.5%), and Pakistan (19.8%). However, it is significantly lower compared to England (35.7%), Spain (36.0%), and Italy (47.7%), as well as populations of East Asia such as China (89.0%), Japan (90.0%), and Vietnam (84.3%).

Conclusion: Ethnicity affects the average daily dose of warfarin due to differences in the population frequencies of minor alleles of genes associated with warfarin pharmacogenetics. The results reflect the features of the Kazakh population structure, which is formed due to complex evolutionary and migration processes and its median geographical position between Asia and Europe. A comparative analysis of SNPs associated with warfarin metabolism in the Kazakh population showed their intermediate position between the previously studied populations.

Keywords: Pharmacogenetics, Warfarin Dosage, Gene, Snps, Ethnicity, Population Genetics.

Audience Take Away Notes

- Prevalence of minor alleles of specific genes in Kazakh population, including CYP2C9*2, CYP2C9*3, CYP4F2, VKORC1, and GGCX
- Comparison of these results with other ethnic populations worldwide
- The significance of these findings in determining personalized warfarin dosage

Biography

Alexandra Murtazaliyeva studied at the S.D. Asfendiyarov, Kazakh National Medical University, Kazakhstan, and graduated as an MD in 2016. She then joined Republican medical genetic consultation at the JSC Scientific Center of Obstetrics, Gynecology, and Perinatology, where she finished her medical genetics residency. Since 2018, she has continued to work as a medical geneticist and participates in scientific research and grants at the center. Since 2023, he has been studying in the doctoral program at Kazakhstan Medical University Higher School of Public Health in the specialty of Medicine.

Ansh Goswami[1]*, Nafees Alam[1], Vishu Gupta[1], Prince Garg[1], Amit Katiyar[2], Vinita Ojha[3], Pradeep Sharma[4], Sumit Rathor[5], Sanjeev Kumar[3], Chittranjan Behera[6], Ruma Ray[1], Sandeep Seth[7], Sudheer Arava[1]

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[2]CCRF, AIIMS, New Delhi
[3]Department of Cardiac Radiology, AIIMS, New Delhi
[4]Department of Biophysics, AIIMS, New Delhi
[5]Department of Biotechnology, AIIMS, New Delhi
[6]Department of Forensic Medicine and Toxicology, AIIMS, New Delhi
[7]Department of Cardiology, AIIMS, New Delhi

Hypertrophic cardiomyopathy contemporary outcomes of family screening and the necessity of whole exome sequencing in Indian sub-continent

Background and Aim: Hypertrophic Cardiomyopathy (HCM) is one of the common and primary genetic cardiomyopathy characterized by inappropriate hypertrophy of the interventricular septum and ventricle with variable clinical presentations, one of the commonest being sudden cardiac death among young adult athletes. Previously, genetic mutations were commonly observed in sarcomere-related genes however, after the advent of NGS-based sequencing, mutations in various other non-sarcomeric genes are also being reported in the literature. In USA and Europe, prevalence has been reported as 1:500, however, it is not understood for Indian population. The current study aims to understand the clinical features, genetic mutations, severity and familial penetrance in HCM patients who are recruited at a tertiary care centre in northern India.

Methods: Clinical and radiological parameters like ECG, echocardiography and cardiac MRI were used to characterize and diagnose the cases of HCM after obtaining the written informed consent. The detailed family pedigrees were prepared for the probands. 5 ml peripheral blood in an EDTA vial is used for DNA extraction, purification and quantification. WES was performed on the Illumina Novaseq 6000 platform. Further validation of the variant in probands as well as the family screening was done using Sanger sequencing. The first-degree relatives were genetically screened in all the families which were accessible additionally, phenotypic assessment was performed for them including ECG, echocardiography and cardiac MRI. Pathogenicity and severity assessment of the variants was documented either by insilico analysis and/or through literature survey.

Results and Conclusion: A total of 80 HCM patients have been enrolled in the study over three years (2021-2024). The mean age of presentation was 41.1 years (range 9 to 80 years). 6 were in the pediatric age group. There was male predominance (86.2%) with an M:F ratio of 7:1. Percentage of patients belonging to NYHA class II was highest as 57.2%, followed by class III. Patients with class I and IV were 3.75% each. Of total, 13 were obstructive and 67 were of non-obstructive type. 11 patients underwent heart transplantation. Detailed family history revealed 48.75% (39) of the cases were familial HCM. Whole exome sequencing was performed in 65 cases, that revealed 79 different variants in the following genes: TNNT2, MMP9, MYOM1, FHOD3, FLNC, CFTR, AKPK3, VWF, SGCD, CAP, PKP2, TMEM43, SCN5A, MYO6, CAP2, PNPLA2, ALDOA, MYL3 TNNI3, NEXN, AGL, MYO6, HAND2, PRKAG2, MYBPC3. Most of the variants were observed in the TTN gene followed by ALPK3 which is different from Western literature where MYH7 and MYBPC3 genes are most commonly involved in HCM. Out of these 79 variants, 19 were predicted to be pathogenic/likely

pathogenic by FATHMM, Mutation Taster, SIFT and Polyphen and the rest were predicted to be variants of unknown significance. All the variants were further screened in the close family members with routine ECHO screening which led to the identification of 17 asymptomatic HCM cases. Genotypic and phenotypic correlation was analyzed and compared with risk stratification. For further confirmation of those mutated variants, in silico prediction was performed in Zebrafish and mouse models to find out the effect of the variants for assessment of pathogenicity.

Audience Take Away Notes

- This study highlights the spectrum of HCM in the Indian population, which has not yet been explored.
- Indian population is very diverse due to its rich history and several cultural practices. Hence, this study about the genotypic and phenotypic spectrum from India will help audiences from such genetically diverse nations to study specific populations.
- This research will help researchers and academicians to showcase the genetic heterogeneity of the HCM disease. Also, the characterization of the variants using in silico models will help to further expand the genetic spectrum.
- A streamlined analysis pipeline for understanding genotype-phenotype correlation has been provided by this study
- It will provide new information to assist in design problem such as designing of gene panels for South Asian population to understand the HCM genotypes.
- Other benefits include studying the importance of performing the pedigree analysis as several asymptomatic individuals were found which could be managed accordingly.

Biography

Ansh Goswami working as a Ph.D. Scholar in the Department of Pathology AIIMS New Delhi. I have completed my master's in Microbiology at Bundelkhand University (B U) Jhansi India. I joined the Department of Biophysics in my M.Sc. research project under the supervision of Dr. T. P. Singh at AIIMS. After that, I have joined My Ph.D. D position in the Department of Pathology under the supervision of Professor Sudheer Kumar Arava.

Muhammad Zaid Ali, Muhammad Wasim Sajjad, Rashid Qayyum, Mashal Hidayat, Prof. Dr. Azam Jan* MD

Department of Cardiothoracic Surgery, Rehman Medical Institute, Peshawar, Pakistan

An overview of aortic surgery at a tertiary care hospital in Pakistan: Our 7 years of experience

Background: The aorta can be involved in different pathologies, including congenital, syndromic, and acquired disorders, which may need intervention in any form to prevent disasters. The purpose of this study was to review the types of aortic pathologies treated surgically and their outcomes.

Methods: A retrospective review of data collected in a database was conducted at a tertiary care hospital from January 2017 to December 2023. A total of 115 patients operated for different diseases of the aorta in a single centre over a period of 7 years were included. Institutional review board approval was granted. Data was analysed using SPSS 25; variables were recorded in frequency and mean.

Results: The mean age measured 44.9±18.3 years. Most patients were male (83.4%), and the oldest patient was 76 years old. Hypertension was the most common co-morbidity (41.7%). NYHA-III (36.5%) was common severity of presenting complaints. Most cases were elective (82%). Surgery without Cardiopulmonary Bypass (CPB) was in 52.1%. A few patients (12.7%) had prolonged ventilation with a mean ventilation of 19.9(±22.0) hours. A total of 65.8% required post-operative blood or blood product transfusion. The mean ICU stay was 56.16±44.0 hours. The most commonly performed procedures were coarctation of the aorta repair (31.3%), Combine Aortic Root (ARR) and ascending aorta replacement (30.4%), followed by abdominal aortic aneurysm (6.9%) with an in-patient mortality of 0%, 11.4% and 0% respectively. The overall In-hospital mortality was 11.3%. Patients undergoing on-pump procedures had 18.2%, whereas those undergoing off-pump procedures had 5% in-patient mortality. Patients diagnosed with aortic dissection had a higher mortality (33.3%) compared to non-dissection pathology (10.4%). Aortic dissection was present in all mortalities of ARR surgery.

Conclusion: Aortic pathology frequently manifests in various anatomical locations, both in elective and emergency scenarios. Although surgical interventions successfully address various aortic pathologies, these procedures are still bound with certain risks. The presence of dissection and emergency presentation is a major risk factor.

Keywords: Aortic Surgery, Mortality, Aortic Aneurysm, Aortic Dissection, Endovascular Repair

Audience Take Away Notes

- Hypertension, a prevalent comorbidity among our patients, constitutes a significant risk factor. Furthermore, many patients present late in the disease process to the hospital, complicating their management. To address these issues, several measures are recommended. First, enhancing primary care services is crucial to ensure early detection with screening programs and early referral to aortic centers. Second, improving hypertension control through widespread public health initiatives and accessible medical treatment can reduce the incidence and severity of related complications. Lastly improved healthcare accessibility both in terms of training in aortic diseases treatment and rapid transport of acute patients is essential to optimize patient outcomes.

Biography

Prof. Dr. Azam Jan, a renowned Cardio Thoracic and Vascular surgeon, is associated with Rehman Medical Institute (RMI) as Consultant and Head of Department Cardiothoracic Surgery. With certification from both the American Board of Surgery and the American Board of Thoracic Surgery, as well as specialized training in critical care management of cardiothoracic surgical patients, Prof. Azam Jan is a leading expert in his field. Having practiced cardiac surgery at the prestigious Houston Methodist De Bakey Heart & Vascular Center, and mentored by the renowned Dr. H. Safi, Prof. Jan specializes in Aortic Surgery. He has also received thoracic training at the highly regarded University of Texas, MD Anderson Cancer Center and The Methodist Hospitals. As an approved supervisor at the College of Physicians and Surgeons Pakistan, Prof. Azam Jan is passionate about training the next generation of surgeons. With his exceptional qualifications and expertise, Prof. Dr. Azam Jan is the perfect choice for patients seeking top-quality Cardio Thoracic and Vascular surgical services.

Chandramohan Deepak
University of Alabama at Birmingham, United States

Management of Cardiorenal Syndrome (CRS) in the acute hospital setting

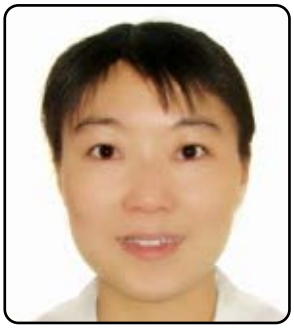
The presentation will focus on the treatment and comprehensive management of Cardiorenal Syndrome (CRS) in the acute hospital setting, which is characterized by acute kidney injury resulting from acute decompensated heart failure. Various therapeutic strategies will be discussed including hemodynamic monitoring, the use of diuretics, management of diuretic resistance, and the role of inotropes and mechanical circulatory support devices. The presentation will also address complications that are commonly encountered. The objective is to guide clinicians in optimizing treatment strategies to improve patient outcomes.

Audience Take Away Notes

- **Effective Therapeutic Strategies:** The audience will learn about the most current and effective therapeutic approaches for managing Type 1 CRS, including the use of diuretics, inotropes, and mechanical circulatory support. The talk will also address certain difficult to manage scenarios such as diuretic failure and the requirement of ultrafiltration using various dialysis modalities.
- Attendees can apply the knowledge gained to manage patients with CRS as the talk will focus on treatment strategies and common scenarios encountered in the medical as the intensive care units.
- Enhanced Clinical Decision-Making, Adoption of Novel Therapies and Identification of reasons for therapy failure and navigating them.
- The content of this presentation provides a solid foundation for other faculty members in various specialities to expand their research in the areas of CRS, heart failure, and kidney disease as congestive heart failure is a common reason for hospitalization.
- The strategies discussed in the presentation offer practical solutions for managing CRS and improving efficiency in patient care.
- The presentation will provide information on predictive models and biomarkers that can improve the accuracy of diagnosis and the design of personalized treatment plans for patients with CRS. A brief talk will also include areas of upcoming research and future directions.
- Hands on proficiency in CRS Management and Cross-Disciplinary Knowledge Sharing.

Biography

Dr. Deepak Chandramohan is currently an Assistant Professor in the Division of Nephrology at UAB and serves as the Medical Director of DaVita Chace Lake Dialysis. He has authored multiple peer-reviewed publications and is an Associate Editor for Clinical Case Reports and the Open Access Journal of Urology and Nephrology. Deepak has about 10 years of teaching and clinical experience in the field of medicine and nephrology. Deepak holds a diverse portfolio of contributions across teaching, councils, hospital committees, peer review and media. Deepak interests are in acute kidney injury, glomerulonephritis, various modalities of dialysis and chronic kidney disease.



Chaoneng Wu[1]*, Sujata Kambhatla[2], Chadi Saad[3]

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Cardiac autonomic neuropathy: Impact on severe hypoglycemic unawareness and orthostatic hypotension in diabetic dysautonomia—A case series study

Introduction: Diabetic Autonomic Neuropathy (DAN) impacts cardiovascular health with an increasing prevalence over diabetic course, affecting up to 50% of patients after 15 years. Notably, DAN-associated Cardiovascular Autonomic Neuropathy (CAN) have a mortality rate of 16% to 50% over 5 years. This underscores the critical need for early recognition and proactive management to mitigate its potentially fatal complications. This article is to highlight the critical yet frequently overlooked severe manifestations of DAN, specifically hypoglycemic unawareness and orthostatic hypotension.

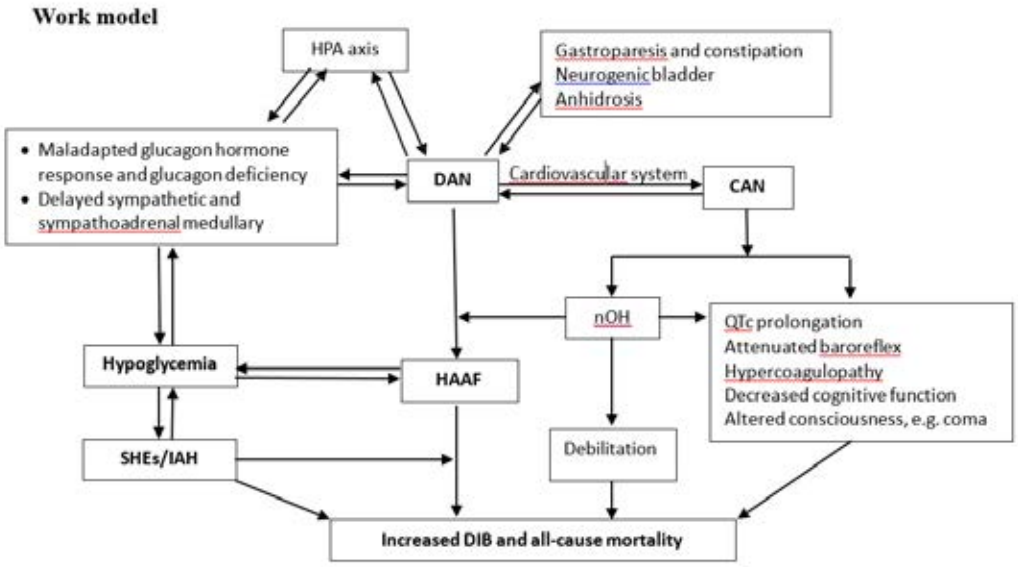
Methods: We analyzed two distinct cases of DAN diagnosed with comprehensive Cardiovascular Autonomic Reflex Tests (CARTs). Case 1 involves a 27-year-old patient with T1DM suffering from recurrent severe hypoglycemic unawareness, while Case 2 describes a 60- year-old patient with T2DM experiencing debilitating orthostatic hypotension.

Results: For Case 1, after implementing automated insulin delivery system, the glucose management improved significantly. Originally presenting with glucose spikes as high as 440 mg/dL and dangerous drops to 24 mg/dL, the intervention stabilized his glucose levels within a safer range of 300 to 420 mg/dL, effectively reducing the incidence of severe hypoglycemic episodes that previously necessitated emergent dextrose administration.

In Case 2, the initiation of Midodrine and Fludrocortisone markedly improved orthostatic intolerance. Prior to treatment, the patient's BP would fall dramatically from 124/74 mmHg when lying to 64/37 mmHg upon standing, causing significant orthostatic symptoms. Post-treatment, it improved to more stable readings (e.g., from 108/75 mmHg sitting to 92/65 mmHg standing), significantly improving symptoms and enhancing capacity of daily activities.

Conclusion: These cases emphasize the importance of early recognition and individualized management of DAN, particularly its cardiac manifestations. Comprehensive autonomic testing, such as CARTs, plays a pivotal role in confirming the diagnosis and guiding therapeutic decisions. Tailored interventions, including advanced technologies like automated insulin delivery systems for T1DM and pharmacotherapy targeting orthostatic hypotension, can significantly improve patient outcomes and quality of life. These findings advocate for integrating advanced diagnostic and therapeutic strategies into clinical guidelines to better manage the cardiovascular complications associated with diabetes.

Keywords: Dysautonomia, Diabetic Mellitus, Hypoglycemia Unawareness, Cardiac Autonomic Neuropathy, Orthostatic Hypotension.

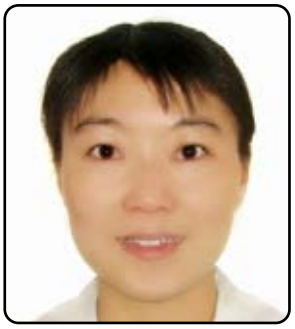


Audience Take Away Notes

- Diabetic Autonomic Neuropathy (DAN) is a debilitating and fatal complication of diabetes. Particularly, DAN-associated Cardiovascular Autonomic Neuropathy (CAN) has a high mortality requiring early diagnosis and proactive management (work model).
- These cases emphasize early recognition and individualized management of DAN, particularly using the CARTs for its cardiac manifestations.
- Tailored interventions, including advanced technologies like automated insulin delivery systems for T1DM and pharmacotherapy targeting neurogenic orthostatic hypotension, can significantly improve patient outcomes and quality of life.
- These findings advocate for integrating advanced diagnostic and therapeutic strategies into clinical guidelines to better manage the cardiovascular complications associated with diabetes.

Biography

Dr. Chaoneng Wu achieved MD and PhD in 2012, and then worked as a cardiologist at Zhongshan Hospital, Fudan University from 2013 to 2014 in Shanghai, China, followed by working as a Cardiology research fellow focusing on Cardio-metabolic disorders at the University of Maryland Medical Center, Maryland USA. In 2023, she was matched to the internal medicine training program at Garden City Hospital, Michigan State University. She has published 15 research articles in SCI journal.



Chaoneng Wu[1]*, Maxim Zlatopolsky[2], Omar Qaqish[2], Sujata Kambhatla[1], Ashok Kondur[2]

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Insulin resistance spawns hypertriglyceridemia-Induced acute pancreatitis and diabetic ketoacidosis: Unboxing a new metabolic crisis

Introduction: Insulin Resistance (IR) means defective insulin-stimulated glucose uptake accompanied by impaired insulin-induced suppression of hepatic glucose output.

Hypertriglyceridemia (HTG) constitutes a critical component of metabolic syndrome, which includes obesity, HTG, low high-density lipoprotein, hypertension and type 2 diabetes. Here we present two cases of severe HTG in poorly controlled T2DM provoking acute pancreatitis and Diabetic Ketoacidosis (DKA).

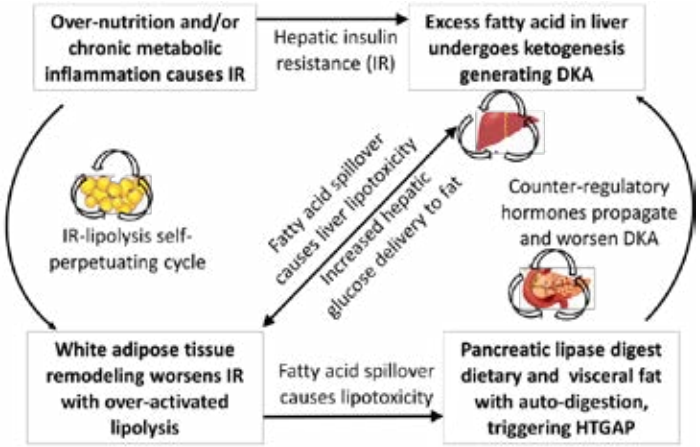
Description: A 48-year-old female presented with a 3-day epigastric pain. She had a history of T2DM, hypertension and obstructive sleep apnea, no family history or other risk factors.

Triglyceride was 3841 mg/dL and HbA1c 10.1%. A 32-year-old male with T2DM came with 2-day abdominal pain. He was hospitalized 9 months ago for Hypertriglyceridemia–Induced Acute Pancreatitis (HTGAP) with triglyceride of 650mg/dL. He was non-compliant. His parents both had T2DM at their 40s. He is a non-smoker and non-drinker. His triglyceride was 5359 mg/dL with HbA1c of 12%. Both patients had elevated lipase, anion gap and c-peptide with abdomen Computed Tomography (CT) showing pancreatitis and hepatic steatosis. Both were admitted to the intensive care unit receiving continuous insulin and Lactated Ringer's solution infusion. The DKAs were resolved in 24 hours and triglycerides gradually decreased to less than 1000 mg/dL on days 5 to 6. Both were discharged with Fenofibrate, Atorvastatin and insulin.

Discussion: This scenario represents an acute metabolic crisis of lipid and glucose. IR and its consequent over-activated lipolysis create a two-way feedback between the white adipose tissue and liver, which damages pancreases with pancreatic self-hydrolysis leading to HTGAP. HTGAP further triggers counter-regulatory hormone to worsen hyperglycemia and lipolysis, ultimately causing downward spiral of HTGAP-DKA (Figure). Acute management involves fluid resuscitation, insulin infusion, and nutrition management and complications prevention. Chronic management includes non-pharmacological measures and medications including Fibrates, Statin, Omega-3 fatty acids, Metformin and Sodium-glucose cotransporter-2 inhibitors. Further investigation involves developing clinically applicable assessment of lipolysis, pancreatic functions and stratified functional and pathological diagnosis for IR- lipolysis cycle.

Keywords: Type 2 Diabetes Mellitus, Insulin Resistance, Hypertriglyceridemia, Hypertriglyceridemia-Induced Acute Pancreatitis, Diabetic Ketoacidosis, Lipolysis.

Work model



Audience Take Away Notes

- The audience will learn the manifestations and management of a new metabolic crisis involving severe hypertriglyceridemia-induced acute pancreatitis and diabetic ketoacidosis spawned by insulin resistance.
- The audience will be able to recognize this new metabolic crisis pattern and take appropriate approaches to manage this new syndrome in both critical and chronic stages.
- This research sheds lights on further investigations involving the development of clinically applicable assessment of lipolysis, pancreatic functions and stratified functional and pathological diagnosis of insulin resistance- lipolysis cycle.
- This research provides a work model to facilitate further pathophysiological research about this new metabolic crisis syndrome.

Biography

Dr. Chaoneng Wu achieved MD and PhD in 2012, and then worked as a cardiologist at Zhongshan Hospital, Fudan University from 2013 to 2014 in Shanghai, China, followed by working as a Cardiology research fellow focusing on Cardio-metabolic disorders at the University of Maryland Medical Center, Maryland USA. In 2023, she was matched to the internal medicine training program at Garden City Hospital, Michigan State University. She has published 15 research articles in SCI journal.

Chinh Duc Nguyen[1]*, Khang Duong Nguyen[2]

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Hybrid approach of photon-counting computed tomography and intravascular ultrasound for chest pain: A case report of successful management and 6-month follow up

Introduction: Coronary artery disease is the leading cause of death among non-communicable diseases. Management stragedy emphasizes on early detection and optimal treatment, with emerging roles of imaging approaches. Photon-couting computed tomography is a new non-invasive diagnosis imaging tool, while intravascular ultrasound is a useful and commonly used in optimal coronary intervention. Combination of photon-counting computed tomography and intravascular ultrasound may arise as an innovation in prompt unstable plaque detection, pre-procedural lesion preparation and optimal percutaneous intervention. However, this method is novel and has not been documented.

Methods: We reported the first case of acute coronary syndrome with correlated lesion descriptions in photon-counting computed tomography and intravascular ultrasound results, along with intravascular ultrasound-based optimal coronary intervention and 6-month follow up.

Case Report: This is a case of a 47-year-old female patient with a history of hypertension and type 2 diabetes mellitus. She presented after a 3-week course of typical angina episodes. The photon-counting computed tomography at the time showed 59.61% stenosis of proximal left anterior descending artery with a lipid volume of 69.2mm2, correlated to 35.2% of lipid core burden. She was then treated with clopidogrel, rosuvastatin, isosorbide mononitrate, metoprolol and trimetazidine. After 17 days, she still experienced typical chest pain at exertion. This led to her hospitalization. Vital signs at admission were within normal range. Electrocardiogram was not significant and troponin concentratin was not elevated. She was diagnosed with unstable angina and then proceeded to have coronary angiography. Intravascular ultrasound showed plaque ulceration in proximal left anterior descending artery with minimum lesion area of 2.6mm2, proximal reference diameter of 3.7mm, distal reference diameter of 3.2mm and plaque burden of 76%. The intervention decision was made based on two indications: chest pain refractory to medical treatment, and high-risk unstable atherosclerosis on intravascular ultrasound. A 3.0 x 28mm drug-eluting stent was employed and intravascular ultrasound was conducted after intervention to ensure optimal intervention, which revealed no egde dissection, minimum stent area was 7.4mm2 and was 92% of distal lumen reference. She was then discharged after an uneventful hospital stay. 6-month follow up showed absence of angina with improvement in physical health.

Conclusion: Combination of photon-counting computed tomography and intravascular ultrasound is new and promising. Early detection of unstable lesions in photon-counting computed tomography and proceed to intravascular ultrasound-based coronary intervention can improve diagnosis accuracy and bring optimal results to both procedural and clinical prospects.

Audience Take Away Notes

- Photon-counting computed tomography is useful, and non-invasive in unstable angina detection.
- Intravascular ultrasound remains the most common and amicable in coronary intervention guidance.
- Physicians can combine photon-counting computed tomography and intravascular ultrasound daily.
- Photon-counting computed tomography is a new, essential tool and easy for training in the Imaging diagnostic department. Intravascular ultrasound is a part of the training program for interventionists around the world.
- This combination will improve diagnostic accuracy, provide a practical way for intervention guidance and check for optimal intervention results. This approach can solve the disadvantages of traditional computed tomography and coronary angiography.

Biography

Dr. Chinh Duc Nguyen studied 6 years of gerenal practitioner and 3 years of cardiology residency at the University of Medicine and Pharmacy at Ho Chi Minh City. After that, he worked as an interventionist at University Medical Center Ho Chi Minh city for over 6 years and is currently a PhD candidate in medicine. He now serves as the vice president of the Can Tho Stroke International Services and the director of the Cardiovascular Center at the same institute.

Dr. Dăscălescu Cristina Anca*, Dr. Cristiadas Srl
Med Fam Society, Brasov, România

Compliance of hypertensive patients monitoring modifiable risk factors in the family doctor's office. Personal study

Motivation of the Work: Identification of barriers in enrolling patients, identification of risk factors, compliance and adherence to treatment and lifestyle changes proposed by specialists

Compliance, the patient's behavioral response to the lifestyle change and the prescribed treatment have a primary role in the ultimate success or failure of the therapy

Personal Study: we evaluated within the everything for your heart program, 150 patients (53%) men and women (47%) upon enrollment, the patients were evaluated using the questionnaire included in the program, analyzes were collected, they were reevaluated after 1 month and answered a questionnaire to assess compliance and adherence to the prescribed treatment motivational interview-at the end

Result: Adherence to treatment of patients evaluated in the pandemic is higher in patients with chronic personal or heredocollateral conditions - 91% in patients who only required a lifestyle change, 84%.

Treatment adherence and compliance are significantly higher in patients with a SCORE risk greater than 10% compared to those with a SCORE value below 5.

Benefits of the Study: Understanding the determinants of chronic patient non-compliance with the initiation and continuation of antihypertensive/CVD treatment at the family doctor is useful in order to dynamically approach the subject in medical practice.

Awareness of the patient, communication with him and a good management of the organization of time in the office in relations with other specialists and with the authorities lead to overcoming the barriers in chronic disease monitoring. In this way, multiple benefits are obtained at low cost and minimal risk, At the negotiation table, the doctor has authority, professionalism and an important capital of credibility conferred by the follow-up over time of generations of patients together with their families.

Conclusion: The family doctor is perhaps the only specialty that treats the patient holistically, by initiating and promoting a healthy lifestyle. Controls endogenous or exogenous risk factors, monitoring the occurrence of complications and imprints a humanistic sanogenic conduct and attitude. He can be authoritative, permissive, conciliatory, direct, impulsive or discreet, credible or evasive, depending on the given situation, personal behavioral typology and the patient in front of him. To be accepted and followed the chosen therapy and lifestyle, will have to communicate effectively and sufficiently credible, in a language adapted to the patient, who has different expectations, information, time and expectation.

Biography

Born in Brasov, a beautiful city in the center of Romania, Dr. Cristina Anca Dascalescu is family medicine chief physician in her own practice since 2008. For 19 years, she is also specialized in occupational medicine. Her other competences include apitherapy, phytotherapy and ultrasonography. Moreover, Dr. Dascalescu has a particular interest in patient education and medical training; she has been hosting local medical TV shows since 2006. She has become primary care trainer in 2011 and teaches cancer screening courses to family physicians. Dr. Dascalescu is constantly present at national and international congresses as a guest speaker in several specialties (family medicine, internal medicine, cardiology, oncology). As an empathetic personality, highly skilled in working in multicultural environments, dr. Dascalescu plays the violin as a hobby and is a volunteer physician trainer in the European Cancer Patient Coalition.

Cristina Milagre Quadros Borges
Hcor-Hospital of Heart in Sao Paulo, Brazil

Harm reduction in tobaccoism: What does the scientific evidence say?

Smoking is considered a chronic disease caused by chemical dependence of nicotine. This is highly addicting, it in the brain system it influences our emotions, increases the feeling of pleasure/humor and reduces the anxiety. In a planet with about 8 billion people, around 1, 36 billion are smokers. Cigarette smoking is the leading cause of preventable death in the world, around 8 million people die every year. A global public health problem, and those who smoke are vulnerable to 50 tobacco-related diseases, several kinds of cancer, lung diseases, cardiovascular disease, erectile dysfunction, female infertility and pregnancy complications. In 2020, according to data from the World Health Organization, 22, 3% of the world population consumed tobacco, 36, 7% of men and 7, 8% of women. In Brazil, due to policies implemented to smoking control, we had a significant drop in the of period (1989 to 2019) from 34, 8% of smokers to 12, 6% and in 2021, the total percentage of smokers age 18 or over was 9.1%. All forms of tobacco consumption are harmful to health and there is no safe level. Cigarette smoke 4.720 different toxic substances such as nicotine, irritants, tar and carbon monoxide. In the last 15 years, new heated tobacco devices have arrived on the market with promises of less harm to health. In 78 countries this products are available, including Japan, The United States, Canada, Portugal, Australia, Italy and The United Kingdom. As they do not cause tobacco combustion, they created significantly lower levels of toxic substances, which is the strongest arguments made by defenders of those products. A systematic review of the literature in 2018 on heated tobacco products identified 31 studies randomly and blind over those devices, 11 independent and 20 funded by the products manufacturers, needing further long-term research. Another systematic review (relevant studies from 2015 to February 2021), both in vitro as alive has shown that the benefit of heated tobacco are controversial and more research is needed to the short-and-long term health effects. Another large concern is that availability of these smokeless products may encourage cigarette consumption, especially among young people and often with the combined use of traditional cigarettes and heated tobacco products.

Biography

Cristina Milagre Quadros Borges is a Cardiologist at Hospital of Heart in São Paulo, Clinic Check-up and outpatient care. She Graduated from the College of Medical of Petrópolis, Rio de Janeiro in 2001. Her Specialization in Clinical Cardiology at the Real and Benemérita Society Portuguese the Beneficência in São Paulo from 2002 to 2004. Her Specialization in electrocardiography from University of São Paulo, University of Medical (2004 to 2006). She was Specialist in Cardiology by Brazilian Society by Cardiology in 2006 and Ergometry in 2007. She also completed a Postgraduate in Exercise and Medical Sport (2021 to 2023) and was Specialist in Medical Sport by the Brazilian Society of Exercise and Medical Sport in 2023.

Dae Wook Lee Medicine (MbChB), MBA, MSC, BSc
Medical Director and Medical Franchise Head, Cardiovascular, Metabolism, Neuroscience, and Gene Therapy Novartis Pharmaceuticals Korea

Latest implication of generative AI in cardiology

The potential applicatins of generative AI in the field of cardiology are remarkably broad. Recent research suggests that generative AI is expected to bring a wide range of innovations across the diagnosis and management of cardiovascular diseases. Particularly, the use of generative AI can help reduce the administrative burden on physicians and improve the efficiency of patient care. By automatically summarizing physician-patient dialogues and inputting them into electronic health records, physicians can focus more on direct patient care. Additionally, the use of AI chatbots can automate routine tasks such as scheduling appointments and responding to simple inquiries, reducing the workload for both physicians and staff.

Furthermore, generative AI can accelerate the pace and quality of cardiovascular research. It can rapidly synthesize vast literature and enable integrative analyses, as well as aid in the generation of new hypotheses. This can expedite the development of novel cardiovascular treatments and contribute to improved patient outcomes.

In these ways, generative AI is anticipated to bring about transformative innovations in the field of cardiology, positively impacting both healthcare providers and patients. However, a systematic approach addressing data quality, regulatory compliance, and ethical considerations is necessary to safely and effectively leverage this technology.

Audience Take Away Notes

- Provide comprehensive overview on last implication of Generative AI in Cardiology
- Innovative Medicine with latest Research in Cardiology
- Sharing of advancement of future new indications for drug discovery using A.I. and digital technology

Biography

Dr. Dae Wook Lee is a Medical Director of Novartis Korea in Cardiology, Renal, Metabolism, and Gene Therapy. He was Head of Medical Portfolio Management in Rare disease, Gastroenterology, PDT, Neuroscience and New Molecular entities from the Asia-Pacific Region of Takeda Pharmaceutical Ltd Pte. Dae Wook Lee obtained his Medical Degree from the University of Warwick, U.K. awarded MbChB Medicine & Surgery, and completed MSC Genetic Epidemiology at the Medical Research Unit in the University of Sheffield, U.K with an additional BSc Biomedical Science degree. He also holds an Executive Master of Business Administration (MBA) for Harris College of Business, Faulkner University in North Alabama in U.S. Dae Wook received the Best Research Award in the International Research Awards of Cardiology and Cardiovascular Medicine in 2022.

Daniel L. Cobo[1]*, Fernando Batigalia[2], Ulisses A. Croti[3], Adilia M.P. Sciarra[4]

[1]Faculdade de Medicina de São Jose do Rio Preto, Postgraduate Department, São José do Rio Preto, SP–Brazil
[2]Faculdade de Medicina de São Jose do Rio Preto, Department of Anatomy, São José do Rio Preto, SP–Brazil

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Cinecoronariographic arterial standardization in univentricular heart

Background: Univentricular Heart (UH) is a rare congenital heart malformation, characterized by the absence of two well-developed ventricles and the presence of a single functional ventricle. In these cases, cardiac magnetic resonance imaging or catheterization can be used for preoperative evaluation, although there is no consensual anatomical description of the pattern of coronary branches in UH.

Objective: To estimate anatomical patterns of coronary arteries in children with UH using coronary angiography.

Methods: Data will be collected from electronic medical records of 30 pediatric patients with UH undergoing cinecoronary angiography in the Hemodynamics sector, from January 2024 to January 2026. Anatomical cinecoronary angiography data will be compared with 30 cinecoronary angiography considered normal in adult patients. All exams will be performed on the Azurion equipment, model Azurion7 M20 ClarityIQ Philips Medical Systems, according to the Consensus guidelines of the American Heart Association. Variables to be considered will include age, gender, ethnic group, weight, height, absence or presence of coronary dominance, absence of specific coronary branches, absence or presence of a single coronary trunk, site of origin (aortic vestibule or ascending part of the aorta artery or pulmonary trunk or other). Statistical analyzes will be obtained using the SPSS Statistics software version 23.0 and will include measures of central tendency (mean and standard deviation) of the branches found, as well as relative frequency (percentage) and combinatorial analysis, with results of independence between the proposed variables evaluated by the P value at 5% significance.

Audience Take Away Notes

- Possible new anatomical patterns of coronary arteries in children with UH using cinecoronary angiography.
- Better understand anatomical patterns of coronary arteries in children with UH.
- This research can be extended so that other professionals can increase their understanding of coronary arterial branches in children with UH.
- This study could facilitate, in the future, a surgical procedure, facilitating the work of a professional as it can establish anatomical patterns of the coronary arteries.

Biography

Daniel Cobo is a Physiotherapist who Graduated from the Universidade de Marília. His Specialization's in General Hospital Physiotherapy Lato Sensu by Hospital de Base and Faculdade de Medicina of São José do Rio Preto. his Improvement in Physiotherapy Applied to Neurology by Hospital de Base and Faculdade de Medicina de São José do Rio Preto. His Master's degree in Health Sciences from the Faculdade de Medicina of São José do Rio Preto. He is a Physiotherapist and supervisor of the Improvement Program by Hospital de Base of São José do Rio Preto. He Supervises the Multiprofessional Residency in Physical Rehabilitation by Faculdade de Medicina of São José do Rio Preto.

David Tamrazyan*, Mikhail Rudenko
20 calle julio Longinos 20, Calahorra, La Rioja 47, Alexandrovskaya St., Taganrog, Rostov región, Russia

Cardiometry: A new fundamental scientific field in cardiology

Cardiometry is a new basic science which will help to make the diagnosis of cardiovascular pathology easier, cheaper and faster. New perspectives in the study of hemodynamics of the body. Cardiometry gives us the opportunity to see the workings of our body from a different perspective, which allows us to put forward new theories and methods for more effective treatment of patients.

This method is easy to use and accessible to everyone, as the equipment is inexpensive and takes about one week to master it. Mathematics, as the most accurate science, is at the heart of cardiometry, which is its main advantage. With the help of mathematical formulas, we have begun to study hemodynamics from a new perspective. We can determine the volume of blood filling or being pushed out by the heart in any phase of its work, and the vascular response to this one.

We also have access to non-invasive diagnostic methods such as determining the levels of lactate, oxygen, phosphocreatine, lactic acid in the heart muscle and spectral analysis of the heart based on mathematical calculations. This makes the work much easier for both researchers and physicians, speeding up diagnosis.

In their latest research work, cardiometry has identified indicators that cannot be seen in a conventional ECG. This makes possible to improve the prognosis of patients' survival before surgery and other studies. The technique also demonstrates high sensitivity to changes in hemodynamics, which helps to detect the following changes.

Another factor is the elevation of the S-L phase and after its flattening. This is a compensatorў mechanism to maintain hemodynamics and it comes as a last resort. Here it was manifested in most cases before death. ECGs were recorded with smoothing of this phase. It refers to the case of adrenal heart, when Ca++ in large amounts accumulates in cells and destroys mitochondrial membranes, which leads to a decrease in myocardial contractions. This leads to the death of the patient.

And we should also note other important indicators. Sharp decrease in variability was about 3-5 units per minute, which may be within the margin of error. Also it was recorded an increase in the load on the nervous system that shows us the spectral analysis of ECG patients' values which were above 1000 units. In aggregate, if the patients had a rise in the S-L phase, an increase in the cardiac stress index from 1000, minimal heart rate variability and stabilization of blood pressure, they died within two weeks, while most patients had improved health.

The rheogram also helps us a lot due to it shows us how much the blood supply to the lungs is involved in the work, there were some patients whose rheogram reacted to breathing, which indicated a very strong hemodynamic load on the lungs, as the heart muscle could no longer cope with the load and some of them soon died, in the future the mechanism will be described in much more detail.

My research is focused on identifying markers of sudden cardiac death, who is at increased risk of having a heart attack because their physical condition does not seem so bad, but the disease they may have is not obvious. We are talking about the general population. The first step is to find them in high-risk people, the second step is in older people, the third step is in the general population.

The method is cheap, making it accessible to poor countries where medicine is still developing, we can say newborn. It could be a substitute for primary diagnosis in remote parts of the country, even without a doctor presence, with the ability to forward patient data to the hospital for initial diagnosis and action.

Cardiometry is a promising, young science, which requires time for its advancement and search of new methods of application. I hope that together we can make easier for the population to access quality medicine without significant costs. I would be very happy to continue my scientific activity here and to be happy with new data that will help us in the future.

Biography

David Tamrazyan completed his first three years at Barnaul Medical University, after three years at Krasnodar State University. He then moved to Spain to continue his studies. He began doing scientific work in his second year at university, researching the manifestation of previously undescribed compensatory mechanisms in dying patients and studying their hemodynamic changes.

Emerson Jose De Souza
VanLab Innovations, Canada

Cardiac myocytes' dynamic contractile behavior differs depending on heart segment

Cardiac myocytes originating from different parts of the heart exhibit varying morphology and ultrastructure. However, the difference in their dynamic behavior is unclear. We examined the contraction of cardiac myocytes originating from the apex, ventricle, and atrium, and found that their dynamic behavior, such as amplitude and frequency of contraction, differs depending on the heart segment of origin. Using video microscopy and highprecision image correlation, we found that: (1) apex myocytes exhibited the highest contraction rate (_17 beats/min); (2) ventricular myocytes exhibited the highest contraction amplitude (_5.2 micron); and (3) as myocyte contraction synchronized, their frequency did not change significantly, but the amplitude of contraction increased in apex and ventricular myocytes. In addition, as myocy cultures mature they formed contractile filaments, further emphasizing the difference in myocyte dynamics is persistent. These results suggest thatthe dynamic behavior (in addition to static properties) of myocytes is dependent on their segment of origin.

Biography

Dr. De Souza is a physicist interested in cell physiology, cellular mechanics and in particular how mechanotransduction impacts the differentiation of stem cell into myocytes. He received his Ph.D. degree from Max Planck Institute for Intelligent Systems, Germany. Thereafter, he joined the Leibniz Institute for New Materials and the University of Illinois at Urbana Champaign, USA as a postdoctoral fellow. He researched how adhesion and mobility affects the contraction of primary myocytes and the differentiation of stem cell into cardiac cells. He developed devices to measure forces and stimulate single myocytes. Dr. De Souza currently collaborates with researchers at the University of British Columbia, Canada.

Gurkamal Sohal MD
Cardiology, University Hospitals Birmingham NHS Foundation Trust - Birmingham, West midlands, Great Britain, United Kingdom

Deciphering the mind-heart mystery: A case report on 16-year-old's struggle with unexplained dizziness and non-exertion syncope

This 16-year-old male presented by recurrent dizziness, escalating to blank spells resulting in sudden, non-exertion-related syncope. Despite extensive medical evaluations including normal clinical examination, blood pressure readings (lying and standing), EEG, resting ECG, echocardiogram and routine blood tests, no cause could be established.

A 24-hour Holter monitor demonstrated 68 pauses in sinus rhythm, with the longest pause lasting 6.9 seconds. These pauses coincided with the patient's dizzy spells suggesting a rare cardiac pathology in 16 year old, Ventricular Standstill (VS).

This case explores the implications of high-degree Atrioventricular (AV) block in young individuals. Potential causes include coronary artery disease, inflammatory and autoimmune disorders to genetic anomalies and congenital heart defects. Ventricular standstill is particularly hazardous, considered ten times more lethal than Ventricular Fibrillation (VFib), often leading to cardiac arrest and sudden death if not promptly addressed.

Remarkably, this case adds to only 105 published instances of VS. This figure was corroborated through evaluation of the medical evidence notably drawing on contributions from Parkinson et al, Daniel Adewale Adegoke and Andrew Sagalov et al separately, whose reviews have chronicled VS cases from 1921 onwards. Our patient's case marks the 5th youngest individual ever diagnosed with VS.

This narrative underscores the need for rapid intervention. Implanting a pacemaker is often the only safeguard against life-threatening bradycardia or asystole, even if the patient shows no symptoms. Such preemptive action is crucial for preventing fatal outcomes and ensuring long-term health.

Further investigations were unremarkable, including negative results for cardiac myocardial viability MRI, autoimmune and genetic studies, the root cause of VS in our patient remains unknown. Unlike other young VS sufferers who had conditions like myocarditis, Short QT syndrome, septic shock from respiratory infection, or Ventricular Septal Defect (VSD).

In conclusion, this case highlights the indispensable role of early detection and advanced medical intervention in managing rare cardiac abnormalities. Ventricular standstill is rare in this age group and there are only few cases reported in the medical literature. This case is the fifth youngest ever reported.

Audience Take Away Notes

- The importance of identifying the cause of recurrent dizziness using history, examination, and various investigations before it progresses to life-threatening episodes.
- An introduction to the rare severe condition of ventricular standstill and the necessity of recommending pacemaker implantation regardless of symptom severity and patient age. For physicians to remember that syncope or seizures could be due to heart pathology and use of ECG or ambulatory ECG monitoring is essential to rule out any cause from heart itself.

- As the cause of Ventricular standstill in our case remains unknown, there is more need for research, teaching, reporting and publication of cases as it happens. This will provide more understanding of Ventricular standstill and also possibly finding actions to prevent this condition.
- Overall, the audience will gain an understanding of a complex medical case, the diagnostic process, and the critical importance of timely intervention in preventing adverse outcomes.
- Additionally, the presentation will emphasise the importance of further research and publication on this topic along with education to others.

Biography

Dr. Gurkamal Sohal earned his Bachelor of Science in Biology from Ateneo de Davao University, Philippines, with a focus on medical subjects and thesis research. Completed his medical degree at Davao Medical School Foundation, Inc., and obtained his Philippine physician license after a postgraduate internship in largest hospital of Philippines-Southern Philippines Medical Centre. Currently, working in NHS-UK as junior specialist in cardiology at England's busiest hospital provider - University Hospitals Birmingham NHS Foundation Trust. Maintaining sanity, one enjoys travelling, sports, music, movies, food, and, most importantly, spending time with his family and friends.

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

Presentation Summary: 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.

Audience Take Away Notes

- Know how to evaluate and understand dysfunctional changes in motor control in individuals withchronic pain.
- Chronic low back pain and knee osteoarthritis is a common pathology in clinical practice and directly impacts the rehabilitation of these patients.

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. He 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.

Dr. Johannes Mueller[1*] MD, Meng, Kosevic D[2], Somesh D[1], Rame JE[3], Goettel P[1]

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A novel technology to treat and reverse moderate/servere heart failure to nyha I-II using electrical microcurrent

Device-based therapy for heart failure is essentially based on two systems available on the market and has only limited long-term success. The basis of these systems is the delivery of different electrical pulses to the myocardium. Based on the knowledge that physiologically constant electrical potential differences and currents play a crucial role in all living biological systems, we developed the idea of applying a constant, extremely low continuous current via two electrodes to the patient's heart with the intention of improving cardiac function.

The microcurrent is applied via two electrodes, one (coil electrode) placed transvenously in the right heart and a second (patch electrode) surgically placed extrapericardially over the free wall of the left ventricle. A microcurrent of the order of a few microamperes is applied between the two electrodes, supplied by a current generator (C-MIC system) located in a subclavian pocket (pacemaker-like). In a pilot study, a significant (>10 percent) improvement in left ventricular Ejection Fraction (EF) was observed after 6 months of use. The improvement in cardiac function was maintained for two years after power was turned off, which was confirmed in a two-year follow-up study. This supports the intent of microcurrent therapy, which is to achieve a sustained improvement in cardiac function after a limited period of application.

Recruitment of patients for an open, randomized pivotal trial for the C-MIC system with 69 patients has been completed. The last patient will complete the study at the end of November 2024. The initial results confirm the observations from the pilot study. The application of microcurrent at the cellular level (protein and gene level; transcriptional analysis) shows that microcurrent intervenes deeply in cell function, making the observed sustained effect of microcurrent at the functional level plausible.

In my talk I will discuss the specific results of the studies and report on the results of the molecular analyses.

Biography

Dr. Johannes Mueller studied electrical engineering at the Technical University of Darmstadt and at the Technical University of Berlin in Germany. He completed his studies with a master's degree in engineering. Parallel to his electrical engineering studies, Johannes studied medicine at the Free University of Berlin, where Johannes graduated with a license to practice medicine and a PhD. Johannes then worked as a clinically at the Dept of surgery of the German Heart Center Berlin under the supervision of Prof. Roland Hetzer. Johannes has published numerous papers in renowned journals and is a reviewer for many journals.

Jose Maria Castellano Vazquez[1]*, Jose Ramon Gonzalez Juanatey[2], Ana Abreu[3], Francisco Araújo[4], Burkhard Weisser[5], Alexander Parkhomenko[6], Enrique Gómez Alvarez[7], Carlos Ignacio Ponte-Negretti[8], Alvaro Sosa-Liprandi[9], Daniel Piñeiro[10], Valentin Fuster[11]

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Optimal adoption of the cnic-polypill strategy (Acetyl Salicylic Acid, Atorvastatin and Ramipril) in routine clinical practice: Global expert consensus and endorsement for enhanced cardiovascular outcomes

Background: The incidence of recurrent Cardiovascular (CV) events (CVe) and all-cause mortality is high among patients in secondary prevention. The SECURE trial demonstrated that the CNIC-Polypill Strategy combining acetylsalicylic acid [ASA], atorvastatin and ramipril into a single pill, reduces CV mortality by 33% in patients with an Acute Myocardial Infarction (AMI) over 3-year (median) follow-up, as compared to standard of care. Based on these findings, the 2023 ESC Guidelines for the Management of Acute Coronary Syndromes recommend the CNIC-Polypill Strategy to improve outcomes and adherence.

Objective: To reach consensus among medical experts worldwide on the optimal adoption of the CNIC-Polypill Strategy (ASA+atorvastatin+ramipril) as baseline treatment to prevent recurrent CVe in routine clinical practice.

Methods: A two-round, modified Delphi method was used. A questionnaire with 30 evidence-based statements was created and validated by 8 renowned cardiologists. Fifty clinicians from 19 countries in Europe, Latin America, and Asia formed the Delphi panel. Panellists ranked their responses using a three-point Likert scale for agreement and importance. Consensus was reached when ≥80% agreed or deemed questions 'very important' or 'important' (Graph 1). Statements without consensus in the first round were refined based on evidence and participant feedback in the second round. Any remaining disagreements were resolved in a face-to-face meeting with the experts. Descriptive statistics were applied.

Results: Response rates for the two rounds were 76% (38/50) and 74% (37/50) respectively. Among panelists, 82% practiced cardiology, 13% internal medicine; 74% frequently prescribed the CNIC-polypill. Consensus was achieved on 93.3% statements. Nearly all panellists (97.4%) agreed that the CNIC-Polypill Strategy (ASA+atorvastatin+ramipril) is safe and could replicate research findings showing a 24% relative

risk reduction in major cardiovascular events over 3 years post-coronary heart disease event. A high percentage supported early initiation (81.1%) and concurred on the prospect of achieving guideline-recommended targets for blood pressure and LDL-cholesterol (89.5%) using the CNIC- Polypill Strategy. Participants (100%) unanimously endorsed the initiation of the CNIC-Polypill Strategy upon hospital discharge or first follow-up visits as baseline therapy. Consensus was reached on using algorithms to start (97.3%) or switch (97.4%) to the CNIC-Polypill Strategy from multiple cardioprotective drugs, considering patient preferences (97.4%). There was agreement on the effectiveness and safety of the CNIC-Polypill Strategy (ASA+atorvastatin+ramipril) for various patient groups beyond AMI patients: previous stroke (94.7%), peripheral artery disease (92.1%), type 2 diabetes mellitus (81.6%), in women and men alike (84.2%). There was agreement on patient satisfaction being determined by the simplified treatment regimen (100%) and convenience (94.7%) offered by the CNIC-Polypill Strategy. There was agreement (89.5%) on that the CNIC-Polypill Strategy prevents recurrent AMI and strokes at an affordable cost, leading to significant cost savings over a patient's lifetime through reduced CVe, hospitalizations, and decreased productivity losses.

Conclusions: This Delphi consensus underscores the strong endorsement of experienced cardiologists and internal medicine doctors in Europe, Latin America, and Asia for the early implementation of the CNIC-Polypill Strategy (ASA+atorvastatin+ramipril) as the baseline treatment for patients to reduce recurrence, improve prognosis, lower CVDs costs and decrease CV mortality after a CVe.

Audience Take Away Notes

- **Clinical Practice:** Healthcare professionals can initiate the CNIC-Polypill Strategy early after a cardiovascular event, using agreed-upon algorithms and considering patient preferences.
- **Treatment Decision-Making:** Physicians can confidently use the CNIC-Polypill Strategy across various patient groups beyond coronary heart disease cases.
- **Guideline Adherence:** The consensus aligns with ESC Guidelines, supporting its integration into routine clinical practice.
- **Enhancing Patient Satisfaction and Adherence:** Emphasizing the CNIC-Polypill Strategy's simplicity and benefits can improve patient outcomes.
- **Policy Consideration:** Policymakers can consider these findings for healthcare policies, given the CNIC-Polypill Strategy's cost-effectiveness and potential to reduce societal burdens.
- **Future Research Implications:** Encouragement for further research and development on the positive outcomes observed with the CNIC-Polypill Strategy.
- **Improving Treatment Decision:** Making Providing clear guidelines for adopting the CNIC-Polypill Strategy early after cardiovascular events, enhancing patient care and prognosis
- **Standardizing Treatment Protocols:** Offering defined algorithms ensures consistency and efficiency in Implementing the CNIC Polypill Strategy, streamlining patient management.
- **Expanding Treatment Scope:** Confirming its effectiveness across diverse patient groups allows for broader treatment options beyond ischemic coronary heart disease.
- **Enhancing Guideline Compliance:** Supporting established ESC Guidelines aids professionals in adhering to standardized protocols for managing cardiovascular events.
- **Boosting Patient Outcomes and Satisfaction:** Emphasizing the CNIC-Polypill Strategy's simplicity and positive outcomes can potentially improve patient adherence and satisfaction.
- **Advocating for Cost-Effective Strategies:** Understanding the CNIC-Polypill Strategy's cost-effectiveness enables professionals to advocate for its adoption, benefiting both patients and healthcare systems.
- **Research Opportunities:** Further Investigations and explore long-term effects
- **Teaching and Education:** Curriculum Enhancement Integrate findings into teaching materials for

practical application.

- **Clinical Practice Implementation:** Guideline Integration Consider incorporating consensus recommendations into clinical guidelines.
- **Interdisciplinary Collaboration:** Collaborative Projects Spark collaborations across disciplines for related research.
- **Continued Investigation:** Longitudinal Studies Initiate studies to assess real-world outcomes in diverse settings.
- **Streamlining Treatment Approaches:** Providing clear guidelines and structured algorithms for initiating or transitioning to combined therapies, aiding in efficient decision-making for healthcare providers.
- **Enhancing Patient Adherence:** Designing convenient and simplified therapies could improve patient compliance with prescribed treatments.

Improved Design Accuracy

- **Structured Protocols:** Guidelines and algorithms established by the consensus could aid in designing treatment protocols that are more accurate and efficient, minimizing variability in clinical decision-making.

Addressing Design Challenges

- **Cost-Effectiveness:** Information on the cost-effectiveness of the strategy may assist designers in formulating medications that provide efficient healthcare solutions at reasonable costs.
- **Reduced Polypharmacy Issues:** By combining multiple medications into a single pill, the CNIC-Polypill Strategy may mitigate issues related to polypharmacy, such as drug interactions, medication adherence challenges, and patient confusion, leading to more streamlined and manageable treatment regimens.
- **Preventive Approach:** The CNIC-Polypill Strategy's emphasis on early initiation and consensus agreement on its efficacy in preventing recurrent cardiovascular events could inspire a preventive approach in designing medications for chronic conditions, potentially reducing disease progression and associated complications.
- **Patient-Centric Care:** Understanding the importance of patient satisfaction and convenience with the CNIC- Polypill Strategy might prompt clinicians to prioritize patient-centric care, focusing on user experience and adherence-enhancing features in treatment plan development.
- **Support for Personalized Medicine:** The consensus-driven guidelines for using the CNIC-Polypill Strategy considering patient preferences could support the advancement of personalized medicine, encouraging tailored treatments based on individual patient needs and preferences.
- **Data-Driven Innovation:** The research provides empirical evidence supporting the effectiveness and safety of combined medications. This data-driven approach could encourage innovation in adopting novel drug combinations, utilizing evidence-based strategies to recommend more effective therapies.
- **Healthcare System Efficiency:** Implementing the CNIC-Polypill Strategy and similar approaches might contribute to a more efficient healthcare system by reducing healthcare costs associated with multiple medications, hospitalizations, and adverse cardiovascular events.
- **Global Health Impact:** Given the multi-country participation in the consensus, the findings may encourage global collaboration and adoption of similar combined strategies, potentially impacting global health outcomes by providing accessible and effective treatments.

Biography

Dr. Castellano graduated in Medicine from the University of Navarra in 2005 and completed his biology degree at Brown University. He specialized in Cardiology at the University Clinic of Navarra, focusing his doctoral thesis on cardiotrophin-1's role in cardiac structure and function within metabolic syndrome. After a post-doctoral research fellowship at Mount Sinai Cardiovascular Institute in New York in 2014, he moved to Madrid as the Coordinator of Clinical Research at the National Center for Cardiovascular Research (CNIC) and became responsible for the Personalized Cardiovascular Health Program at HM Monteprincipe University Hospital. He is currently an associate professor at Icahn School of Medicine, New York, US and CEU San Pablo University, Madrid, Spain. Dr. Castellano leads international projects on health promotion strategies and cardiovascular prevention.

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Impact of virtual reality imaging on pre-operative planning for paediatric cardio surgery

Objectives: To investigate how virtual reality imaging impacts decision-making in atrioventricular valve surgery.

Methods: This was a single centre retrospective study involving 15 children and adolescents-median age 6 years (range 0.33-16) requiring surgical repair of the atrioventricular valves between 2016-2019. The patients' pre-operative 3D echocardiographic data were used to create 3D visualisation in a VR application. Five paediatric cardiothoracic surgeons completed a questionnaire formulated to compare their surgical decisions regarding the cases after reviewing conventionally presented 2D and 3D echocardiographic images and again after visualisation of 3D echocardiograms using the VR platform. Finally, intraoperative findings were shared with surgeons to confirm assessment of the pathology.

Results: In 67% of cases presented with VR, surgeons reported having more or much more confidence in their understanding of each patient's pathology and their surgical approach. In all but one case, surgeons were at least as confident after reviewing the VR compared to standard imaging. The case where surgeons reported to be least confident on VR had the worst technical quality of data used. After viewing patient cases on VR, surgeons reported that they would have made minor modifications to surgical approach in 53% and major modifications in 7% of cases.

Conclusion: The main impact of viewing imaging on VR is the improved clarity of the anatomical structures. Surgeons reported that this would have impacted the surgical approach in the majority of cases. Poor quality 3D echocardiographic data was associated with a negative impact of VR visualisation, thus quality assessment of imaging is necessary before projecting in a VR format.

Audience Take Away Notes

- The rapid advancements in virtual and augmented reality technology, driven by the need for it during the COVID-19 pandemic, highlight its extensive applications and potential in medicine.
- Developments in virtual and augmented reality technology offer promising roles and potential for advancing medical diagnostics, education and therapies.
- However, robust translational research is necessary to identify the areas most in need of these technologies, to assess the feasibility and costs of their integration, and to determine if the resulting clinical outcomes surpass those of existing methods.
- This study demonstrates the potential clinical benefits and value of virtual reality in surgical planning for congenital heart disease and other structural heart defects.
- This study also reveals the crucial and urgent need for more translational research to bridge the gap between technological advancements and clinical practice through collaboration between engineers and doctors to enhance the safety and usability of new modalities.

- This presentation aims to emphasise the potential of virtual reality in enhancing surgical treatment and to call the audience to action in driving translational research. This is crucial for mobilizing the integration of growing technology into clinical practice where real and relevant impacts can be made in patient outcomes.

Biography

Dr. Chu studied medicine at King's College University, London, and graduated with an MBBS in 2023. She also completed an iBSc in Surgical Design, Technology and Innovation at Imperial College London in 2021. She then began her medical career at Lister Hospital, Stevenage, working in rotations of the General Surgery, Stroke and Emergency departments. Additionally, she works in the Plastic Surgery Department at Cambridge University Hospital, Cambridge on an honorary contract. Dr. Chu has presented at the World Congress of Endoscopic Surgery 2021 and has publications in the Journal of Thoracic and Cardiovascular Surgery and the British Medical Journal.

Lidia Lopez Garcia[1]*, Manuel Méndez Bailón[2], Luis Fernández Carmena[3], María Dolores Gómez Barriga[1], Isidre Vila Costa[1]

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Seeing is believing. Analysis of the influence of congestion determined by lung ultrasound on 30-day mortality in patients with heart failure. Step by step study

The symptoms shown by frail patients with Heart Failure (HF) are sometimes different and the most common symptoms may be absent, delaying the diagnosis and finding patients with more severe HF. The use of lung ultrasound in these patients could help to objectify real congestion.

Observational, multicenter and prospective study carried out in the Cardiology and Internal Medicine Service of 28 hospitals in Spain. All patients admitted within the first 48 hours of admission with a main diagnosis of heart failure and with NT-ProBNP greater than 300 pg/ml on admission were included. A binary regression was performed to study the influence of congestion variables determined by lung ultrasound and chest x-ray on 30-day mortality. To calculate the sample size, a power of 80% and an alpha error of 0.05 were used up to N= 778.

The main finding described in this study is the high fragility that we found in the patient with HF 75.8% n=583. The results obtained after a binary logistic regression to study the influence of the most frequent and significant comorbidities in the patient with an SPPB score <5 on 30-day mortality show that the presence of pleural effusion present in the lung ultrasound at Admission increases the patient's death by 8.71 times at 30 days of follow-up (p=0.03).

The use of lung ultrasound performed systematically in these patients could help establish a diagnosis and initiate early treatment.

Audience Take Away Notes

- Healthcare professionals, particularly those in cardiology and internal medicine, can apply this study to improve their approach when treating frail patients with heart failure.
- The use of lung ultrasound for detecting congestion in these patients can lead to earlier diagnosis and the initiation of appropriate treatment, potentially enhancing clinical management and patient outcomes.
- Other academics and educators could utilize this study as a foundation for their own research or as educational material in courses on heart failure, lung ultrasound, and the care of frail patients, thus advancing knowledge in the field and enriching student education.
- Incorporating lung ultrasound systematically in the assessment of heart failure patients could simplify and streamline the diagnosis and treatment process.
- The use of lung ultrasound in frail heart failure patients would provide crucial information, aiding physicians in making more informed clinical

Biography

Dr. Lidia López García graduated in Nursing and holds a Master's in Research from Complutense University of Madrid since 2017. She began her doctoral studies in 2019 on heart failure and frailty, obtaining the doctoral degree in 2023 with a ''Cum Laude'' mention and receiving Extraordinary Doctorate Award from the Complutense University of Madrid. She Currently, she combines her clinical work at the Cardiovascular Institute of the San Carlos Clinical Hospital in Madrid with teaching and research. She is a faculty member at the Complutense University of Madrid and Alfonso X el Sabio University, a scientific committee member of the Spanish Association of Cardiovascular Nursing (AEEC), and a member of the Heart Failure Association (HFA) of the European Society of Cardiology.

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Unmasking STEMI impostors: A case exposing diagnostic dilemmas and crucial clinical ramifications

Introduction: STEMI mimickers have been described in literature for many decades, but each clinical interaction teaches us new ways to tackle these medical emergencies. This case underscores the need to individualize every case in an effort to avoid delaying life-saving treatment and preventing complications from protocol based but potentially harmful management strategies like thrombolysis, for instance, in cases like aortic dissection, subarachnoid hemorrhage or myopericarditis.

Case: This abstract presents a case study of a 32-year-old non-diabetic, non-hypertensive woman who was admitted with sudden-onset worsening breathlessness and one episode of syncope. Initial Electrocardiogram (ECG) findings revealed ST elevations in anterior wall leads coupled with complete Atrioventricular (AV) block, raising suspicion for ST-Elevation Myocardial Infarction (STEMI). 2D-echocardiography demonstrated anterior wall hypokinesia and moderate left ventricular dysfunction. After prompt initial stabilization, she was shifted for coronary angiography in with intention of primary PCI with severe bradycardia prompting urgent placement of a temporary pacemaker. Despite normal coronary angiography results, given the atypical presentation and absence of typical cardiovascular risk factors, further investigation into alternative etiologies was pursued. Intravenous methylprednisolone therapy was initiated based on suspected myocarditis or sarcoidosis. Over the course of seven days in the Intensive Care Unit (ICCU), the patient's echocardiographic abnormalities resolved, and sinus rhythm was restored on ECG. Notably, subsequent Cardiac Magnetic Resonance Imaging (CMRI) findings showed patchy gadolinium enhancement in the apical, anterior, and septal walls with improving LV dysfunction, consistent with a diagnosis of myocarditis, though cardiac sarcoidosis could not be entirely ruled out at this point, emphasizing the diagnostic challenge posed by STEMI mimickers. A complete search for extra-cardiac sarcoidosis and rheumatology review ruled sarcoidosis to be an unlikely cause and patient was discharged on tapering doses of oral steroids to be continued for 8 weeks.

Discussion: This case underscores the critical importance of early recognition of STEMI mimickers, which, if left undiagnosed, can have life-threatening consequences. Furthermore, it highlights the necessity of a comprehensive diagnostic approach that considers alternative etiologies, particularly in cases where clinical and imaging findings deviate from traditional STEMI presentations. By shedding light on the diagnostic dilemmas and therapeutic challenges encountered in this case, our findings underscore the imperative for heightened clinical vigilance and expanded diagnostic paradigms in the evaluation of acute cardiac syndromes. This case report contributes to the growing body of literature aimed at enhancing our understanding of STEMI mimickers and optimizing patient outcomes through timely intervention and targeted management strategies.

Audience Take Away Notes

- Attendees of this presentation will gain valuable insights into the complexities of diagnosing and managing ST-elevation myocardial infarction (STEMI) mimickers, as demonstrated through a compelling case study, particularly in the absence of typical risk factors. Secondly it shows that prompt interventional measures even on strong clinical suspicion can be lifesaving. Moreover, the presentation underscores the critical role of interdisciplinary collaboration and advanced imaging modalities, such as cardiac magnetic resonance imaging (CMRI), in reaching accurate diagnoses and guiding appropriate treatment strategies.
- This presentation offers invaluable insights that directly impact healthcare professionals in their daily practice. First responders and clinicians in field should be attuned to make decisions on STEMI mimickers about referral and immediate management strategies. This case study may help attendees be better equipped to navigate similar clinical challenges in their own practice, ultimately enhancing the quality of care delivered to patients with acute cardiac syndromes.
- Faculty members engaged in research or teaching related to cardiology, emergency medicine, internal medicine, or medical education could find this research beneficial in several ways. First, in-depth analysis of rare cardiac presentations, like STEMI mimickers, lays groundwork for broader research into similar cases, aiding in refining diagnostic criteria, prognostic indicators, and treatment outcomes. Second, it may influence the development or refinement of clinical practice guidelines regarding acute cardiac syndromes, potentially improving patient care standards. And finally, given the complex nature of this case, interdisciplinary collaboration among specialists in cardiology, radiology, and critical care medicine may prove to be essential for investigating STEMI mimickers and devising comprehensive management approaches.

Biography

Dr. Manidipa Majumdar is an interventional cardiologist and an Assistant Professor based in Durgapur, India, currently working in Gouri Devi Institute of Medical Sciences and Hospital. She completed her MBBS (PMQ-2013) and MD (Medicine-2018) from Kolkata, and DM in cardiology (2022) from Sri Jayadeva Institute of Cardiovascular Sciences and Research, Bengaluru, India. She also completed her MRCP (UK) in 2023. Dr. Majumdar is primarily interested in interventional and structural work as well as device therapies. She is involved in and look forward to opportunities of cardiovascular research as well.

Marc Jason Ng*, Raymond Banquirigo, Regidor Encabo

Cardiology fellow Cardiovascular Institute, Cardinal Santos Medical Center, Manila, Philippines

Effect of Sodium Glucose Co-Transporter 2 inhibitors ($SGLT_2i$) on ejection fraction in acute myocardial infarction: A systematic review and meta-analysis

Background: Sodium-Glucose Cotransporter 2 ($SGLT_2$) inhibitors are principally known as agents for the control of Type 2 Diabetes Mellitus (Type 2 DM). In recent years, they have gained more attention especially for their role in cardiovascular protection in Type 2 diabetes patients, in non-diabetic patients with heart failure, and in reducing rehospitalization rates and mortality rates in heart failure patients. This study assessed the effect on change in LV ejection fraction from baseline after adding Sodium-Glucose Cotransporter 2 ($SGLT_2$) inhibitors on top of standard therapy to the current regimen for Acute Myocardial Infarction (AMI).

Methods: This was a systematic review and meta-analysis of 5 Randomized Controlled Trials (RCTs) that were selected from Pubmed, Google Scholar, Cochrane, and Herdin using the inclusion and exclusion criteria set in this study. Jadad score and funnel plot was used to assess for the risk of bias in the included studies. Analysis was performed using Cochrane Review Manager (Revman) 5, wherein the mean difference were computed using inverse variance approach and random effects mode were computed at 95% confidence interval. Forest plot was also generated to display the significance of the intervention of each study.

Results: There was a total of 807 patients included in this meta-analysis, with majority being predominantly male, with an age range of 45 to 74 years old, with a heterogenous distribution of comorbidities (Type 2 DM, previous history of stroke, and smoking history). The results showed statistically significant improvement in the ejection fraction in the SGLT2i group after the follow up period (range of 12 weeks to 28 weeks) by 1.61% compared to the placebo group (95% CI 0.50, 2.73, $p<0.01$). On subgroup analysis, post-PCI patients had more statistically significant and consistent results compared to the non-PCI patients, with a mean difference of 1.67% (95% CI 0.72, 2.63, $p<0.001$).

Audience Take Away Notes

- The potential role of $SGLT_2$ inhibitors in the setting of acute coronary syndrome
- The specific settings where the use of $SGLT_2$ inhibitors in acute coronary syndrome can confer the greatest improvement in lab parameters
- Potential further topics of interest for future clinical trials on $SGLT_2$ inhibitors

Biography

Dr. Marc Jason Ng studied Chemistry at Ateneo de Manila University in Quezon City and graduated BS Chemistry in 2012. He finished his medical degree in University of the East Ramon Magsaysay Memorial Medical Center, Inc. in 2016 and did his residency in internal medicine at Metropolitan Medical Center, a tertiary private institute that caters to the Manila area. He then subsequently started his subspecialty training in cardiology at Cardinal Santos Medical Center.

Dr. Maria Borrell
Cardiovascular Program, Institut de Recerca Sant Pau - Centre CERCA, Barcelona, Spain

Cholesterol lowering and other PCSK9 roles

Atherosclerosis, the leading cause of cardiovascular diseases, is driven by high blood cholesterol levels and chronic inflammation. The disruption of the hepatic interaction between Proprotein Convertase Subtilisin/Kexin 9 (PCSK9) and Low-Density Lipoprotein Receptor (LDLR) downregulates blood cholesterol levels and reduces cardiovascular events. Recent data suggest that other members of the LDLR superfamily may be targets of PCSK9.

In this presentation I will show that LDLR-related protein 5 (LRP5) is a PCSK9 target, and both proteins participate in foam cell formation and hence, in the mechanism of lipid accumulation and atherosclerotic plaque formation.

I will first show that LRP5 is needed for macrophage lipid uptake since LRP5-silenced macrophages have less intracellular cholesterol accumulation. Immunoprecipitation experiments will show that LRP5 forms a complex with PCSK9 in lipid-loaded macrophages opening the possibility that PCSK9 induces lysosomal LRP5 degradation in a similar manner than it does with LDLR. We have also studied the role of PCSK9 and LRP5 in the inflammatory response by TLR4/NFkB signaling pathway and show that PCSK9 gene interference decreases inflammation supporting a role for PCSK9 as an inflammatory mediator in atherosclerosis.

We then validated our results in an in vivo mice model. We analyzed the differential expression of cholesterol related genes and proteins including LRP5, PCSK9, VLDLR, LRP6, LRP2 and LRP1 in wildtype (Wt) and LRP5 knock-out (Lrp5-/-) mice fed a Normocholesterolemic (NC) or a Hypercholesterolemic (HC) diet. Lipid uptake was studied in liver resident cells (HepG2) and in liver fat storing cells (hepatic stellate cells) with and without LRP5 and PCSK9. Results show that cholesterol accumulates in livers of Wt and Lrp5-/- mice. This accumulation can be explained by the increased expression of LRP receptors in HC Wt mice or scavenger receptors in HC Lrp5-/- mice. More importantly, PCSK9 and LRP5 bind intracellularly in fat storing liver cells but not in structural liver cells and both proteins are needed for lipid uptake.

Audience Take Away Notes

- They will learn new roles of PCSK9
- PCSK9 inhibitors are being used worldwide and are expected to increase their sales in the next years. However the roles of PCSK9 beyond lipid lowering are vastly unknown. In this presentation the audience will learn new roles of PCSK9 to be taken into account when prescribing/taking PCSK9 inhibitors.

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. She leads a project based in lipoprotein receptors role in cholesterol metabolism. In the recent years she has been developing a project that analyzes the function of PCSK9 beyond its canonical function in cholesterol lowering. These 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.

Prof. Dr. Azam Jan, Dr. Muhammad Salman Farsi*, Dr. Muhammad Wasim Sajjad, Rashid Qayyum, Yasir Aziz

Cardiothoracic department, Rehman Medical Institute Peshawar, Pakistan

Outcomes of CABG in hypertensive vs non-hypertensive patients

Introduction: Coronary Artery Bypass Grafting (CABG) is a crucial surgical intervention for severe coronary artery disease. Hypertension, a prevalent comorbidity, may impact post-operative outcomes. This study investigates the effect of hypertension on outcomes in CABG patients.

Methods: A retrospective analysis of prospectively collected data was conducted at Rehman Medical Institute from January 2017 to December 2023. All patient who underwent CABG alone were during this time period were included in study. Patients were divided into hypertensive group and non-hypertensive group. Ethical approval was obtained, and inclusion criteria were met. Data analysis was performed using SPSS 20.

Results: The study included 3543 patients, with 2536 hypertensive and 1004 non-hypertensive patients. In-hospital mortality was 3.4% in the hypertensive group and 4.1% in the non-hypertensive group, with no significant difference ($p=0.3$). However, hypertensive patients had a higher incidence of diabetes ($p<0.001$), pre-operative history of cerebrovascular Transient Ischemic Attacks (TIA) ($p=0.01$), prolonged ICU stay ($p=0.03$), and prolonged inotropic support ($p=0.003$).

Conclusions: While in-hospital mortality was similar between groups, hypertensive patients undergoing CABG had a higher prevalence of comorbidities and postoperative complications. These findings emphasize the importance of meticulous preoperative management and postoperative care in hypertensive patients to minimize associated risks and improve surgical outcomes. The study highlights the need for aggressive blood pressure control and optimal medical therapy to reduce the burden of postoperative complications in hypertensive patients undergoing CABG.

Audience Take Away Notes

- Healthcare professionals, particularly cardiologists and cardiothoracic surgeons, can use the findings to optimize preoperative management and postoperative care for hypertensive patients undergoing CABG, leading to improved surgical outcomes and reduced postoperative complications.
- This research can help healthcare professionals in their job by informing evidence-based decisions and guidelines for the treatment of hypertensive patients with severe coronary artery disease, ultimately leading to better patient care and outcomes.
- Faculty and researchers in the field of cardiology and cardiothoracic surgery can use this study as a foundation to expand their research or teaching, exploring topics such as the impact of hypertension on CABG outcomes in specific patient subgroups or the effectiveness of different blood pressure management strategies in this context.
- This research provides a practical solution to the problem of optimizing CABG outcomes in hypertensive patients, which can simplify and improve the design of treatment plans and protocols, leading to improved accuracy and effectiveness in patient care.

Other benefits include:

- Informing the development of guidelines and protocols for the management of hypertensive patients

undergoing CABG

- Identifying areas for quality improvement initiatives in cardiothoracic surgery
- Contributing to the advancement of knowledge in the field of cardiology and cardiothoracic surgery
- Providing insights for future research studies and clinical trials

Biography

Dr. Muhammad Salman Farsi, a final year resident in cardiac surgery at Rehman Medical Institute Peshawar. With a strong foundation in medicine, Muhammad Salman Farsi completed my MBBS from Khyber Medical University, Peshawar, followed by a comprehensive training program in general surgery at Lady Reading Hospital Peshawar. My passion for cardiac surgery led me to pursue specialized training at RMI, where Muhammad Salman Farsi currently exploring my areas of interest, including aortic root surgery, heart transplantation, and congenital cardiac surgery. Muhammad Salman Farsi excited to share my research and insights with you, and look forward to engaging with esteemed colleagues at this conference.

Dr. Muhammad Shahzad*, Azam Jan, Nouman Shah, Muhammad Wasim Sajjad

Rehman Medical Institute, Peshawar, KPK, Pakistan

In hospital outcomes of left main stem disease in patients undergoing coronary artery bypass grafting

Background: Left Main Stem (LMS) supplies blood to a great portion of the heart (about 80%) and disease in LMS is serious, often life-threatening. Coronary Artery Bypass Grafting (CABG) is a well-established treatment for LMS disease. The primary objective of this study was to determine the early outcomes of CABG in LMS disease.

Methods: A retrospective observational study was conducted at a tertiary care hospital, in total 2602 isolated CABGs were performed from July 2017 to August 2022, out of which 386 patients had LMS disease and were included in this study.

Results: A total of 386 patients with LMS disease were included in our study, majority of them were male, the most common comorbidity was Hypertension (68.9%) followed by Diabetes (46.4%), the severity of presenting complaints was SOB NYHA-III (49.7%) and angina CCS-III (49%), majority of the patients had triple vessel coronary artery disease (86.5%) and majority of them had elective procedure (97.9%). The cross-clamp time on average was 55.19±25.1 minutes, 46.1% of patients had an intra-op blood transfusion and 8.3% of patients had IABP inserted. Initial ICU stay on average was 54.4±29.5 hours, initial mechanical ventilation time was 8.5±14.1 hours and 41.2% of patients had post-op blood transfusions. In-hospital mortality was 3.9%.

Conclusion: CABG remains the cornerstone in the treatment of Left main stem disease. The morbidities and mortalities found in our study are comparable with international studies.

Audience Take Away Notes

- To know LMS disease in detail
- To know the management of LMS disease
- To know the urgency of dealing with LMS disease
- Future goals of LMS vs non-LMS disease

Biography

Dr. Muhammad Shahzad completed his Bachelor of Medicine and Bachelor of Surgery at Hainan Medical University in China, graduating with an MBBS in 2017. He then undertook his house job at CDA Hospital in Islamabad, Pakistan. Following this, he began his Residency in Surgery and Allied track at CDA Hospital, Islamabad, in 2020. Since 2022, he has been pursuing his residency in Cardiac Surgery at Rehman Medical Institute in Peshawar, Pakistan.

Muhammad Wasim Sajjad[1]*, Saifullah1, Aamir Iqbal[2], Azam Jan[1], Muhammad Salman Farsi[1], Sarmad Saeed khattak[1], Danish Naseem[1], Rashid Qayyum[1]

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[2]Department of Cardiothoracic Surgery, Peshawar Institute of Cardiology, Peshawar, KPK, Pakistan

Gender difference and its outcomes in anemic patients undergoing CABG

Background: According to some studies female gender is considered as independent predictor of mortality in CABG. We sought to further identify the impact of anemia on outcomes according to gender.

Material & Methods: The observational study on retrospective data was conducted at Tertiary care hospital from December 2020 to December 2023. A total of 1346 anemic patients were included, with 1029 male & 317 female patients. 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: Database of cardiovascular & thoracic department was searched for the patients who underwent isolated CABG. Total of 2570 patients were identified, amongst them only 1346 patients who met the criteria were included in the study, with majority of the male population (76.4%) having a mean age of 59.2±9.1years. Most of the patients had NYHA III (54.7%) & CCS III (53.3%) functional class symptoms. Hypertension was our most common co-morbidity (72.8%), followed by DM (66.6%) & dyslipidemia (54.6%). Anemia is more prevalant in female patients & required markedly higher rates of intra- & post-operate blood/products transfusion. Interms of post-operative outcomes there was no notable difference in mean ventilation time, re-admission to ICU, re-intubation & in-hospital mortality. However male patients were having significantly higher rates of re-opening (P=0.005) with prolong ventilation hours (P=0.02).

Conclusion: There is no comparable gender difference interms of mortality in anemic patients undergoing CABG. However female anemic patients required substantially higher rate of blood/products transfusion.

Keywords: Gender, Anemia, Coronary Artery Bypass Grafting (CABG), Outcomes, Mortality.

Audience Take Away Notes

- The audience will gain insights into the gender-specific outcomes of anemic patients undergoing Coronary Artery Bypass Grafting (CABG). Understanding that there is no significant gender difference in terms of mortality but that female anemic patients require more blood/product transfusions can inform clinical practices and decision-making processes.
- Healthcare professionals can use this information to better prepare for and manage the care of female anemic patients undergoing CABG. By anticipating the higher transfusion needs, surgical teams can improve resource allocation, enhance patient care protocols, and potentially reduce complications associated with transfusions.
- This research provides a valuable data set that other faculty members can use to expand their investigations into gender differences in cardiac surgery outcomes. It can also serve as a case study or a basis for discussions in medical education, highlighting the importance of considering gender in clinical practice and research.
- By identifying the higher transfusion needs of female anemic patients, this research offers a practical solution to improve surgical planning and efficiency. Hospitals can ensure that adequate blood products are available, reducing delays and enhancing the overall efficiency of CABG procedures.

- This research improves the accuracy of preoperative assessments and resource planning for CABG in anemic patients. It provides new, gender-specific information that can be incorporated into surgical planning tools, thereby enhancing the precision of patient management strategies.

Biography

Dr. Muhammad Wasim Sajjad is a dedicated cardiac surgeon who graduated with an MBBS in 2018 from Ayub Medical College, Abbottabad, Khyber Medical University. After completing a one-year house job at the same institution, he passed the FCPS-I exams in Surgery & Allied and began a general surgery residency. Following two years of general surgery, he pursued his passion for cardiac surgery under the mentorship of Prof. Dr. Azam Jan, MD. Dr. Sajjad has presented numerous papers at national conferences and has seven research publications in peer-reviewed journals, with additional works in progress, reflecting his commitment to advancing the field of cardiac surgery.

Rokhan Yousaf Zai, Muhammad Wasim Sajjad*, Azam Jan, Rashid Qayyum

Department of Cardiothoracic Surgery, Rehman Medical Institute, Peshawar, KPK, Pakistan

Obesity is the major killer in Coronary Artery Bypass Grafting (CABG) surgery

Objective: To explore the impact of BMI on the short-term mortality and morbidity of patients undergoing CABG.

Methodology: Observational study on retrospective data of CABG patients at a tertiary care hospital from 1-7-2017 to 31-12-2022. Ethical approval was granted and inclusion criteria were met. Patients were then categorized according to their BMI groups & perioperative variables were extracted. For statistical analysis, Chi-square, T-test & multivariate regression analysis was employed. A P-value of <0.05 was considered statistically significant.

Results: Total of 2599 isolated CABG patients were included with mean age of 57.86±9.2 years. The majority was overweight (42%). Approximately 78.1% were male. Hypertension was our dominant co-morbidity (68.7%) followed by dyslipidemia (65.4%) & DM (50.1%). Majority of patients had NYHA-III symptoms (51.2%). The morbidly obese patients had the highest in-hospital mortality (11.3%) while overweight had the lowest (2.6%) with a P-value of 0.008. Generally, there is a significant increasing trend of DM & HTN incidence with increasing BMI compared to normal (<0.001). The insertion of IABP was significantly highest among the underweight having low EF when compared with preserved EF (0.05). Most of the underweight were elderly with a high incidence of postoperative complications (e.g., prolonged mechanical ventilation, blood product requirement, reopening & re-intubation), but not significant. However, they have significantly longer mechanical ventilation time compared to normal (<0.001). Multivariate regression analysis showed that mean age (P 0.034), cross-clamp time (P 0.018) & mechanical ventilation (P<0.001) were significantly associated with in-hospital mortality.

Conclusion: Both extreme categories of the BMI showed higher incidence of perioperative complications, such as morbidly obese patients had the highest in-hospital mortality while overweight had the lowest confirming a partial obesity paradox, whereas underweight patients had significantly higher mechanical ventilation time.

Keywords: Body Mass Index, CABG (Coronary Artery Bypass Grafting), Obesity, Mortality.

Audience Take Away Notes

- The audience will learn about the impact of different BMI categories on perioperative complications and outcomes in Coronary Artery Bypass Grafting (CABG) surgery. Specifically, they will understand the risks associated with extreme BMI categories, including higher in-hospital mortality rates for morbidly obese patients and increased mechanical ventilation time for underweight patients, while also recognizing the partial obesity paradox where overweight patients had the lowest incidence of complications.
- Healthcare professionals can use this knowledge to tailor preoperative assessments, perioperative care, and postoperative management for CABG patients based on their BMI. By anticipating the specific

risks associated with different BMI categories, surgical teams can implement targeted interventions to mitigate these risks, ultimately improving patient outcomes.

- This research provides valuable data that other faculty members can use to expand their investigations into the relationship between BMI and surgical outcomes. It can also serve as a teaching tool in medical education to highlight the significance of patient-specific risk factors in surgical planning and outcomes. Faculty can use this study to foster discussions on the obesity paradox and its implications in clinical practice.
- By identifying the specific risks associated with different BMI categories, this research offers practical solutions to improve the efficiency of surgical care. For instance, hospitals can develop specific protocols for managing morbidly obese and underweight patients, ensuring that appropriate resources and strategies are in place to handle their unique needs, thereby reducing perioperative complications and improving overall surgical outcomes.
- This research enhances the accuracy of preoperative risk assessments by providing new information on how BMI affects perioperative outcomes. This allows for more precise and individualized surgical planning. Surgeons and anesthesiologists can use this data to make better-informed decisions about patient care, improving the accuracy and effectiveness of their interventions.

Biography

Dr. Muhammad Wasim Sajjad is a dedicated cardiac surgeon who graduated with an MBBS in 2018 from Ayub Medical College, Abbottabad, Khyber Medical University. After completing a one-year house job at the same institution, he passed the FCPS-I exams in Surgery & Allied and began a general surgery residency. Following two years of general surgery, he pursued his passion for cardiac surgery under the mentorship of Prof. Dr. Azam Jan, MD. Dr. Sajjad has presented numerous papers at national conferences and has seven research publications in peer-reviewed journals, with additional works in progress, reflecting his commitment to advancing the field of cardiac surgery.

N Gokarneshan
SSM College of Engineering, India

Role of smart textiles in cardiac monitoring

In recent years, wearables are exploding in popularity as unobtrusive devices able to extend traditional healthcare delivery systems. Smart textiles are one of the main innovative types of wearables used for non invasive and continuous monitoring of cardiac activity. A prominent solution is based on the detection of vibrations induced on the chest surface by the heart beating (I.e. precordial motions). In the literature different sensor positions have been investigated, but it appears to be a lack of accepted standard points for the detection of heart induced motions. A smart textile based on fibre Bragg grating sensor has been proposed to detect the precordial motions.on the chest. The feasibility of the smart textile for cardiac monitoring has been evaluated on 3 volunteers at 3 measurement points. Then the influence of the measurement site of the measurement site on the response of smart textile has been preliminary evaluated in terms of peak to peak amplitude of the signal. The signal amplitude is greater than the noise, so it allows detecting precordial motions. These promising results Foster future investigations on the capability and performance of the system in estimating heart rate. Further tests will also be devoted to finding out the optimal measurement points to standardize the sensors positioning in this specific application.

Biography

Dr. N. Gokarneshan was born in 1964. He got his Doctoral degree in textile technology from Anna University, Chennai, India. He has academic experience of over three decades. In his academic career he has authored 15 books, published over 200 papers in peer reviewed indexed journals that include Scopus, Web of Science, SCI, etc. He has contributed many book chapters for edited books with reputed publishers like Wiley, Elsevier, Springer, etc. One of his note worthy contributions is his book chapter titled TEXTILES FOR CARDIAC CARE in edited book published by NOVA Science. One of his major area of interests is medical textiles, and he has contributed by way of authoring books, book chapters, and journal publications. He has also presented papers in a number of conferences. He is editor in chief of some peer reviewed journals and editorial member in many journals that include medical journals. He is recipient of a number of awards and recognitions for outstanding contributions in his field.

Najlae Adadi[1]*, Maryem Sahli[2], Grégory Egéa[3], Ilham Ratbi[6], Mohamed Taoudi[3], Layla Zniber[4], Wafaa Jdioui[2], Said El Mouatassim[3,5], Abdelaziz Sefiani[2,6]

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[6]Centre de génomique humaine, Faculté de médecine et pharmacie, Mohammed V University in Rabat, Morocco

Post-mortem diagnosis of pompe disease by exome sequencing in a Moroccan family

Background: Pompe disease is an autosomal recessive lysosomal storage disorder characterized by progressive myopathy with proximal muscle weakness, respiratory muscle dysfunction, and cardiomyopathy. Its prevalence ranges between 1/9000 and 1/40,000. It is caused by compound heterozygous or homozygous mutations in the GAA gene, which encodes for the lysosomal enzyme alpha-glucosidase, required for the degrading of lysosomal glycogen.

Case Presentation: In this study, we report the case of a Moroccan consanguineous family with hypertrophic cardiomyopathy and sudden cardiac deaths at an early age; our patient was a 7-month-old Moroccan girl. Whole exome sequencing identified the deleterious homozygous mutation c.236_246delCCACACAGTGC (p.Pro79ArgfsX13) of GAA gene leading to a post-mortem diagnosis of Pompe disease.

Conclusion: The identification of the genetic substrate in our patient, the daughter, confirmed the clinical diagnosis of Pompe disease and allowed us to provide appropriate genetic counseling to the family for future pregnancies.

Keywords: Post-Mortem Diagnosis, Pompe Disease, GAA Gene, Moroccan Family.

Biography

Najlae Adadi is a professor at the higher institute of Nursing Professions and Health Techniques, Dakhla, Morocco (from 2022 at present). She earned her PhD in medical genetics especially cardiogenectis at the faculty of medicine and pharmacy of Rabat, Morocco in 2019.

Okorafor Ugochi Chinenye[1]*, Okorafor Chiamaka Ifeyinwa[2], Achime Nnanna[1], Okam Onyinyechi[1], Amadi Casmir Ezenwa[1]

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Serum uric acid is independently associated with increased cardiovascular risk in Nigerian patients

Background: Serum Uric Acid (sUA) has been known to be associated with an increased risk of developing cardiovascular disease in different populations. However, whether this is also the case with Nigerian patients remains understudied. The study aimed to assess the association between sUA levels and two measures of cardiovascular risk i.e. Framingham 10-year cardiovascular risk score and Atherogenic Index of Plasma (AIP).

Methods: This was a retrospective study carried out using data from clinical records of new patients presenting at Meridian Cardiac Center over a period of 1 year from November 2022 to October 2023. In total, 428 patients presented newly to the hospital in that time period. After exclusions for incomplete anthropometric, clinical and laboratory data, as well as patients for whom the Framingham Risk Score (FRS) could not be calculated (290), the records of 138 patients were included in the project. Data from the records was used to calculate the FRS and AIP. Statistical tests of association were used to determine the significance of the relationship between sUA levels and the measures of cardiovascular risk. Two-tailed p <0.05 was deemed statistically significant.

Results: Hyperuricemia was found to be more prevalent in individuals with central obesity i.e. Waist circumference ≥94cm in males or 80cm in females (93.4% vs 6.6%; p=0.03). Serum uric acid also positively correlated with FRS (Correlation coefficient 0.190; $p<0.05$), serum triglyceride levels and AIP (Corelation coefficient 0.259 and 0.294 respectively; $p<0.001$ for both). After multivariate analyses, uric acid was noted to be significantly and independently associated with high FRS and AIP after adjusting for age, smoking and diabetes history, blood pressure, total and high-density lipoprotein cholesterol, serum triglycerides, and waist circumference ($p<0.001$).

Binary logistic regression analysis was carried out to assess if high uric acid levels could predict a high FRS and AIP. Elevated sUA significantly predicted high AIP levels in univariate analysis (Odds ratio 1.46, 95% Confidence Interval 1.05-2.03).

Conclusion: The results emphasize the emergence of sUA as a cardiovascular risk factor of note in clinical settings. We recommend an inclusion of sUA testing in the laboratory investigation panel for CVD-free individuals undergoing cardiovascular risk assessment. This could prompt identification of at-risk patients who would benefit from early institution of lifestyle modification. More research is needed to deduce the relationship, if any, between cardiovascular risk reduction and pharmacological reduction of sUA levels.

Audience Take Away Notes

- This research adds to the existing literature demonstrating elevated serum uric acid level as an independent cardiovascular risk factor in Nigerians and Sub-Saharan Africa as a whole.
- A singular uric acid test can predict cardiovascular risk as much as an entire lipid profile panel, thereby reducing cost of laboratory investigations and benefiting patients in low and lower-middle income health settings.

- It is hoped that this presentation would lead to increased uptake of serum uric acid testing in clinical settings for cardiovascular risk assessment.
- Further research regarding cardiovascular risk reduction via modulation of serum uric acid levels is needed.

Biography

Dr. Ugochi Chinenye Okorafor graduated from the University of Ibadan, Ibadan, Nigeria in 2021 with a distinction in psychiatry. She completed her housemanship at 68 Nigerian Army Reference Hospital, Yaba, Lagos, Nigeria and currently works as a medical officer at Meridian Cardiac Center, Festac Town, Lagos, Nigeria. She is working to progress to postgraduate training in internal medicine.

Rona Barbie O. Mendoza*, Jhoanna G. Marcelo
Adult Cardiology, Philippine Heart Center, Quezon City, Manila, Philippines

Predictors of treatment success among patients with atrial septal defect and pulmonary hypertension who underwent device or surgical closure

Introduction: ASD has a generally good prognosis and if left untreated can lead to PH. The present study was conducted to determine the predictors of treatment success among adult ASD with PH and develop a scoring system based on the identified factors.

Methods: Adult patients with ASD and PH who underwent hemodynamic studies before closure and had available data on treatment outcome within hospital stay from the time of the procedure were included in the study. Multiple logistic regression analyses were performed and a scoring system was then created based on the log-odds ratios (beta coefficient).

Results: 297 patients were included with 269 (90.57%) of the patients had successful ASD closure. Factors associated with treatment success were LA size >37mm [odds ratio (OR) 12.31; P=942 in dynes/seconds/cm-5 (OR 6.08; P=0.002, Beta coefficient 1.81). The scoring system ranges from 0 to 6 where a score of >3 suggests an increased likelihood of successful closure. The scoring system showed good discriminative ability, acceptable accuracy (75.09%), sensitivity (73.88%) and specificity (88%).

Discussion: The proposed scoring system which includes LA size, PH severity, and SVR, can be utilized to identify ASD patients with PH in whom successful closure can be achieved.

Audience Take Away Notes

- This study provides a scoring system for successful treatment outcomes after ASD closure with PH
- Patients with PH have a higher probability of successful ASD closure if the patient had the following characteristics: LA size >37mm, mild PH and SVR> 942 in dynes/seconds/cm-5
- This scoring system may be used as a screening tool to determine the likelihood for successful outcomes of ASD closure in adult patients with pulmonary hypertension

Biography

Rona Barbie O. Mendoza is pursuing her studies in medicine at the University of Santo Tomas in the Philippines, She completed her training in internal medicine at Chinese General Hospital in the same country. She subsequently commenced a fellowship in adult cardiology at the Philippine Heart Center, which she successfully completed in 2023.

Zakir Ullah Khan, Shakir Ullah Khan*, Musaira Tariq
University Hospital Southampton, United Kingdom

Relationship between cardiometabolic index in early pregnancy and hypertensive disorder complicating pregnancy

Background: This study aimed to examine the cardiometabolic index during early pregnancy in individuals with hypertension-complicating pregnancy, especially preeclampsia. Additionally, this study sought to determine the relationship between cardiometabolic index and the incidence of varying degrees of preeclampsia.

Methodology: This study included 289 pregnant women diagnosed with preeclampsia who were registered and delivered at our hospital. These women were assigned to the preeclampsia group. Additionally, a group of 289 healthy pregnant women of identical gestational ages within the same time frame was included for comparison. Clinical data on pregnancy, including Body Mass Index (BMI), blood pressure, waistline, triglyceride levels, and cardiometabolic index, were compared between the two groups. An analysis was conducted to examine the association between early pregnancy cardiometabolic index and the occurrence of preeclampsia.

Results: There was a significant association between the quartile of cardiometabolic index and the proportion of preeclampsia patients ($p<0.001$). Furthermore, after controlling for age and BMI, the risk of preeclampsia remained significantly elevated and was associated with the cardiometabolic index.

Conclusions: A positive correlation was observed between cardiometabolic index during early pregnancy and the occurrence of preeclampsia.

Biography

Shakir Khan graduated from Khyber Medical College in Peshawar, Pakistan in 2020. Then Shakir Khan went on to joined Hayatabad Medical Complex as a Trainee Medical Officer. He was also working on my GMC registration. After getting his GMC registration, he joined Southampton General Hospital as Foundation Fellow.

Zakir Khan graduated medical school in 2017 and then trained in general medicine and cardiology in pakistan for 3 yrs. over last 2 and half years i have been working as a registrar in cardiology in russells hall hospital dudley UK.

Sudheer Arava[1]*, Ansh Goswami[1], Nafees Alam[1], Amit Katiyar[2], Vinita Ojha[3], Pradeep Sharma[4], Smit Rathor[5], Sanjeev Kumar[3], Chittranjan Behera[6], Ruma Ray[1], Sandeep Seth[7]

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Genetic landscape of restrictive cardiomyopathy: A study of 40 cases from North India

Background and Aim: Restrictive cardiomyopathy is one of the rarest types of cardiomyopathy with a prevalence of 1:1500-2000 in USA. Clincioradiologicaly, it is characterized by normal ventricles, dilated atrial chambers with diastolic dysfunction. Many secondary etiological factors can cause RCM however idiopathic RCM is mostly genetic in etiology. Identification of specific mutation is important to known the diagnosis, clinical severity, familial penetrance and prognosis. Present study highlights the complete genetic profile of RCM patients.

Methods: 40 RCM patients along with their first-degree family members were enrolled in the study after written informed consent. Detailed clinical evaluation, ECG and Echocardiography screening and/or cardiac MRI was performed in the proband to identify the RCM phenotype. Endomyocardial biopsy was performed to see any identifiable cause. For molecular study 5 ml peripheral blood in EDTA vial is collected. DNA isolation, purification and quantification was performed. Whole exome sequencing was performed in Illumina Novaseq 6000 platform. Identified mutation was further confirmed by sanger sequencing. Mutation-specific primer design and Sanger sequencing were used to confirm variants and perform family screening. In silico analysis was used to make the predictions.

Results and Conclusion: The mean age of onset was 27.8 yrs. (Range 4 to 70 years). 58.1 % of patients were male. Most of the patients belong to NYHA class III. 13.9 % were familial whereas 86.1 % were sporadic. The mean ejection fraction was 48.5%. Whole exome sequencing revealed 28 variants identified in TNNI3, TTN, TPL1, ANK2, COL4A3, MYH7, MYH6, ANKRD1, FLNC, CRELD1, genes. Common variants were observed in the FLNC gene followed by TNNI3 and MYH7 genes whereas in Western literature TNNI3 and TNNT2 genes were most commonly involved. Out of these 28 different variants 7 were predicted to be pathogenic/likely pathogenic by FATHMM, Mutation Taster, SIFT and Polyphen and the rest were predicted to be Variants of Unknown Significance (VOUS). 3 cases underwent heart transplantation and 12 cases died because of the disease severity during follow-up. Each identified variant was tested in the first degree family members along with Echocardiographic screening. Early stage disease was identified in 5 individuals who are kept under close observation follow up and health education.

Further detailed molecular research is necessary to determine the pathogenicity of VUS variants.

Audience Take Away Notes

- Data on Genetics of RCM is sparse because of rarity of this disease entity
- Recent work on Whole exome sequencing reveals various VOUS mutations

- New pathogenic mutations are also identified which are to be documented
- Functional analysis of all the VOUS is necessary for subcategorization
- World genetic data on RCM is necessary for future RCM genetic database
- Certain mutations lead to severity of clinical progression hence, knowledge regarding these is must
- Large similar collaborative studies with functional validation of the genes is required in RCM

Biography

Dr. Sudheer Arava (MD) is a professor in pathology at all India institute of medical sciences, new Delhi, INDIA. Dr Sudheer has special research interest in cardiovascular pathology related work. Presently working in the field of genetics of idiopathic cardiomyopathy, cardiac amyloidosis, its characterization, heart transplant evaluation and evaluation of sudden cardiac death in young. Dr. Arava has more than 150 publications.

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Mastering complexity: Successful management of high-risk dual CTOs with synergistic double calcium modification

Introduction: In the realm of Percutaneous Coronary Intervention (PCI), the management of coronary artery calcium poses a significant challenge, particularly in cases of severe calcification and high-risk patients. Inadequate addressal leads to suboptimal outcomes in terms of stent delivery, expansion, and apposition, and increased risk of complications. Managing double Chronic Total Occlusions (CTOs) in a single patient during a single procedure presents a formidable challenge in interventional cardiology, fraught with inherent risks and potential complications.

Case Presentation: We present a challenging case of a 55-year-old male with a five-year history of gradually progressive angina, hypertension, and smoking, culminating in Canadian Cardiovascular Society (CCS) Class IV angina over the past three months. Electrocardiography revealed ST depression in multiple leads and ST elevation in aVR, indicative of significant coronary artery disease. Echocardiography demonstrated preserved left ventricular function without regional wall motion abnormalities. Coronary angiogram revealed triple vessel coronary artery disease. Thorough procedural planning was done prior to the case after shared decision making with the family. The patient underwent a complex Percutaneous Coronary Intervention (PCI) procedure with opening of both the CTOs. The Right Coronary Artery (RCA) was prioritized, initially approached with a Gaia 2 wire and NIC nano balloon (0.85mm), and subsequently exchanged with a Fielder FC wire using a Finecross microcatheter. Despite successful crossing of the proximal Chronic Total Occlusion (CTO) segment, encountering a distal cap branch presented a wiring challenge, necessitating branch occlusion with another wire for distal RCA access. Intravascular Ultrasound (IVUS) imaging revealed extensive calcification of nearly 300 degrees in the CTO segment. Rota-ablation (Rota-pro) using 1.5mm burr followed by Intravascular Lithotripsy (IVL) were used prior to deployment of two overlapping stents. Similar calcium burden was observed in the Left Anterior Descending Artery (LAD) with 270-degree arc of calcium on IVUS, which was wired with Fielder XT-A wire. After pre-dilatation, Rotaablation followed by IVL were performed which enabled passing of two long stents which were successfully deployed. The Left Circumflex Artery (LCX) lesion also had significant calcification which was similarly managed with predilation followed by Intravascular Lithotripsy (IVL) and stent deployment. Post-PCI the proximal LAD CTO segment achieved an area of 9.4 mm2, highlighting successful intervention despite challenging anatomical obstacles.

Discussion: This case underscores the effectiveness of multivessel PCI as a viable alternative to Coronary Artery Bypass Grafting (CABG) in patients with complex coronary anatomy and refractory angina. The integration of advanced technologies, meticulous planning, and procedural expertise played pivotal roles in achieving successful revascularization.

Conclusion: Multivessel PCI, supported by cutting-edge technologies and strategic planning, offers a compelling therapeutic option for patients with extensive coronary artery disease and refractory angina. This case exemplifies the transformative impact of technology like rota-ablation, IVL and CTO specific hardware, in overcoming challenges associated with chronic total occlusions and underscores the

importance of a comprehensive approach in optimizing outcomes for high-risk patients.

Audience Take Away Notes

- The audience will gain valuable insights from the presented case on the effective management of complex coronary artery disease, particularly in patients with CTOs and extensive calcification. They will learn about the integration of advanced technologies such as rota-ablation, Intravascular Lithotripsy (IVL), and specialized hardware to achieve successful revascularization. This knowledge can be applied in their clinical practice to optimize procedural planning and execution in similar challenging cases, ultimately improving patient outcomes.
- This case will significantly benefit the audience in their job by providing practical strategies and techniques for addressing complex coronary lesions, especially in patients with refractory angina and multiple CTOs. Healthcare providers involved in interventional cardiology, including interventional cardiologists, cath-lab staff, and allied healthcare professionals, can utilize the insights gained from this case to enhance their procedural skills, refine their decision-making processes, and improve patient care delivery.
- This research can serve as a valuable resource for other faculty members to expand their research or teaching endeavors in interventional cardiology. The detailed presentation of the case, including procedural techniques, imaging findings, and clinical outcomes, offers a rich educational resource for teaching medical students, residents, and fellows about the complexities of managing complex coronary artery disease.

Biography

Dr. Tutan Das is an interventional cardiologist based in Durgapur, India, currently working in Vivekananda Hospital. He completed his MBBS in 2015 and MD (Medicine-2019) from RIMS, Imphal, and DM in cardiology (2023) from AIIMS Bhubaneswar, India. Dr. Das is primarily interested in interventional and structural work as well as device therapies. He is involved in cardiovascular research as well, with more than 50 national and international publications in indexed journals.

Tutan Das[1]*, Manidipa Majumdar[2]

[1]Department of Cardiology, Vivekananda Hospital, Durgapur, West Bengal, India
[2]Department of Cardiology, Gouri Devi Institute of Medical Sciences and Hospital, Durgapur, West Bengal, India

Exploring a therapeutic dilemma: A case study of bilateral renal artery stenosis induced by aortoarteritis manifesting as a hypertensive emergency

Introduction: Hypertensive emergencies present diagnostic and therapeutic challenges, particularly in young patients. We present a compelling case of a 23-year-old female presenting with refractory hypertensive emergency, ultimately diagnosed with bilateral renal artery stenosis secondary to aortoarteritis.

Case Presentation: The patient presented with severe hypertension (250/140 mmHg) and altered sensorium in the emergency department. The hypertension was found to be refractory on four antihypertensives including IV infusions. Extensive workup revealed bilateral renal artery stenosis due to aortoarteritis, compounded by severe abdominal aortic narrowing near the renal artery origins, as seen on CT aortogram. Initial approach was to perform balloon angioplasty bilaterally, following which clinical and angiographical response was reviewed which were inadequate, likely due to early recoil. Hence it was decided to use stents and successful angioplasty was performed, deploying stents in both renal arteries (7X19mm stent in LRA, 6X18mm stent in RRA), resulting in significant improvement of blood pressure to 150/100 mmHg post-procedure. The patient was discharged after 5 days of hospitalisation in total with near normal blood pressure on single antihypertensive and immunomodulators for aortoarteritis.

Discussion: This case highlights the diagnostic challenges in young patients presenting with hypertensive emergencies and underscores the importance of considering rare etiologies such as aortoarteritis-induced renal artery stenosis. The successful management of this case demonstrates the efficacy of endovascular interventions in restoring renal perfusion and normalizing blood pressure.

Conclusion: Aortoarteritis-induced bilateral renal artery stenosis can present as a hypertensive emergency, necessitating prompt diagnosis and intervention. This case elaborates the importance of a thorough diagnostic workup and timely endovascular intervention in achieving favorable outcomes in patients with refractory hypertension due to renovascular etiologies.

Audience Take Away Notes

- Understanding the diagnostic challenges and clinical implications of such rare presentations will enhance their ability to recognize and appropriately manage similar cases in their own clinical practice. By learning about the successful utilization of endovascular interventions in restoring renal perfusion and normalizing blood pressure, attendees will be equipped with valuable knowledge and techniques.
- First and foremost, it will enhance their diagnostic acumen by broadening their awareness of rare etiologies that can underlie hypertensive emergencies, particularly in young patients.
- Additionally, the case demonstrates the successful management of refractory hypertension through endovascular interventions, highlighting the efficacy of such approaches in restoring renal perfusion and controlling blood pressure. It also underscores the importance of individualizing patient care to obtain optimal outcome, while keeping past research knowledge in mind.

- The presented case of aortoarteritis-related bilateral renal artery stenosis presenting as a hypertensive emergency offers valuable insights that other faculty members could leverage to expand their research or teaching endeavours. For research purposes, this case provides a unique and compelling clinical scenario that could serve as a foundation for further investigation into the epidemiology, pathophysiology, and optimal management strategies of hypertensive emergencies with renovascular etiologies, especially to revisit the role of stenting which is traditionally reserved in such cases. In terms of teaching, this case offers a rich educational resource for medical students, residents, and fellows to deepen their understanding of hypertensive emergencies and rare etiologies.

Biography

Dr. Tutan Das is an interventional cardiologist based in Durgapur, India, currently working in Vivekananda Hospital. He completed his MBBS in 2015 and MD (Medicine-2019) from RIMS, Imphal, and DM in cardiology (2023) from AIIMS Bhubaneswar, India. Dr. Das is primarily interested in interventional and structural work as well as device therapies. He is involved in cardiovascular research as well, with more than 50 national and international publications in indexed journals.

Veronika Kachmar
Jagiellonian University Medical College, Krakow, Poland

Complication in the treatment of atrial fibrillation in elderly patient with comorbidities

Atrial Fibrillation (AF) is the most common significant cardiac rhythm disorder and is also a powerful common risk factor for stroke: about 15% of all strokes in the U.S. are attributable to AF. The use of combined antiplatelet and anticoagulant therapy in patients with AF has recently come under scrutiny. It is common for patients with AF to have co-morbidities that may necessitate the use of antiplatelet therapy. However, multiple studies examining outcomes of combined antiplatelet and anticoagulant therapy in patients with indications for both have demonstrated an increased risk of major hemorrhage compared with either treatment alone; and among patients with stable Coronary Artery Disease (CAD), in particular, combined antiplatelet and anticoagulant therapy has not been shown to reduce either AF-related stroke or cardiovascular events. AF treatment-related complications also increase markedly in older adults (defined as ≥75 years of age for this review). The older AF population has a high risk of stroke, bleeding, and death. Our patient is an 85-year-old man with a complicated past medical history. He was diagnosed with long-term persistent atrial fibrillation, 3 degree of AV block, condition after cardiac pacemaker implantation, chronic coronary disease, myocardial infarction, CABG procedure, dyslipidemia, Hypertension, Heart Failure (NYHA III), benign prostatic hyperplasia. He had a family history of hypertension and heart attack. His symptoms of AFib have continued for many years and his cardiologist decided to keep his heart rate with oral antiarrhythmic drugs. His CHA2DS2-VASc score is 5, HAS-BLED score is 2. He is a great candidate for long term oral anticoagulant therapy. The NOAC was prescribed. His dyslipidemia is controlled with statins. Hypertension is treated by double therapy of ACE inhibitors and diuretics. Managing AFib in this elderly patient with multiple comorbidities requires a careful and individualized approach. The primary focus should be on optimizing anticoagulation with a NOAC to prevent stroke while avoiding unnecessary antiplatelet therapy to minimize bleeding risk. Regular follow-up and comprehensive management of comorbid conditions are crucial to achieving the best outcomes.

Audience Take Away Notes

- The audience will learn about treating AFib in elderly patients with comorbidities necessitates a tailored approach to optimize anticoagulation therapy while minimizing bleeding risk. The use of NOACs over warfarin and avoiding unnecessary antiplatelet therapy are key strategies. Comprehensive management of comorbid conditions, patient education, and regular follow-up are essential to improve outcomes in this vulnerable population.

Biography

Veronika Kachmar earned a Master of Medicine degree from the Ivano-Frankivsk National Medical University in Ukraine. Currently in her last year of medical school at Jagiellonian university in Poland. Her greatest interest is cardiology, interventional cardiology, and cardiac surgery. She participates in different research on experimental methods of treating arrhythmias of various origins, treating patients with heart failure awaiting transplantation, anticoagulation

Dr. Yasser Mohammed Hassanain Elsayed
Critical Care Medicine, Egyptian Ministry of Health (MOH), Egypt

Right to left angina Yasser's syndrome (Swinging Yasser's Central Heart Syndrome) or dancing Yasser's heart syndrome-A new cardiovascular discovery and differentiation-A case report

Rationale: Mesocardia is the heart in the middle compartment of the chest. The human heart is normally located within the thoracic cavity, medially between the lungs in the mediastinum. Marfan syndrome is an autosomal dominant disorder and multi-systemic genetic disorder that affects the connective tissue. Dextrocardia is a rare congenital condition in which the apex of the heart is located on the right side of the body rather than towards the left. Heterotaxy syndromes refer to abnormal left/right distribution of thoracic and abdominal organs that is neither situs solitus nor situs inversus. They are commonly associated with Congenital Heart Disease (CHD) and visceral malformations. There is either left or right isomerism also present in Heterotaxy syndromes.

Patient Concerns: A 17-year-old adolescent single-student male patient was presented to the Intensive Care Unit (ICU) with angina and alternation of the chest pain referral to both arms.

Diagnosis: Right to left angina Yasser's syndrome (Swinging Yasser's central heart syndrome) or Dancing Yasser's heart syndrome in an adolescent male patient.

Interventions: Electrocardiography and echocardiography.

Outcomes: Spontaneous dramatic clinical, and electrocardiographic improvement with no medications had happened.

Lessons: Right to left angina Yasser's syndrome (Swinging Yasser's central heart syndrome) or Dancing Yasser's heart syndrome is a new and innovative cardiovascular syndrome. Due to some similarities, dextrocardia, Marfan syndrome, and Heterotaxy syndrome are implicated in Differentiation. Dancing hyperactivity, traction, and twisting theories are interpretative suggested theories for this new syndrome.

Audience Take Away Notes

- The audience will be more search for a more discovery about this new syndrome.
- This syndrome will help the audience to understand the dynamic and static status of the heart.
- Yes. So, widening this research to expand their research or teaching is advisable.
- This syndrome opens the way for researchers to more cardiovascular discoveries.
- Unavailable genetic testing for new syndromes and probable genetic diseases sometimes is a vital problem.

Biography

Dr. Yasser Mohammed Hassanain Elsayed; A scientist, critical care physician, cardiologist, and independent researcher at Egyptian Ministry of Health. Publicized articles; (134). Innovations (13); (3) Signs, (4) Phenomena, (1) Modification, (1) Maneuver, (1) Method, (1) Test and (2) Syndrome. Speaker; (23) International conferences. Reviewer; (233) articles for (79) Journals. Honorable editor; (270) Journals. International Conferences OCM; (9). Instructor; (8) official and (88)

non-official. COVID-19 publicized articles; (41). Prizes nomination; Breakthrough Prize, Einstein Prize, Abdul Hameed Showman Award for Arab Researchers, and ESICM Awards. Excellence certificate (more than 120). The most famous articles are; 1. Wavy Triple an Electrocardiographic Sign (Yasser's Sign). 2. Wavy double an Electrocardiographic Sign (Yasser's Sign). 3. Graded Phenomenon (Yasser's Phenomenon). 4. Connected Aircraft Squadron Electrocardiographic Sign (Yasser's sign). 5. Electrocardiographic Passing Phenomenon (Flying Phenomenon or Yasser's Phenomenon). 6. Movable weaning off an electrocardiographic phenomenon (Yasser's phenomenon of hypocalcemia). 7. Yasser's COVID-19 Discrepancy phenomenon. 8. Yasser's Maneuver in the Psychogenic Coma. 9. Yasser's Modification or Oxygen test. 10. Three and One Method (Yasser's Method). 11. Yasser's Stressor Test. 12. Triphasic Yasser's Stressor Syndrome. 13. Right to Left Angina Yasser's Syndrome (Swinging Yasser's Central Heart Syndrome) or Dancing Yasser's Heart Syndrome.

BOOK OF ABSTRACTS

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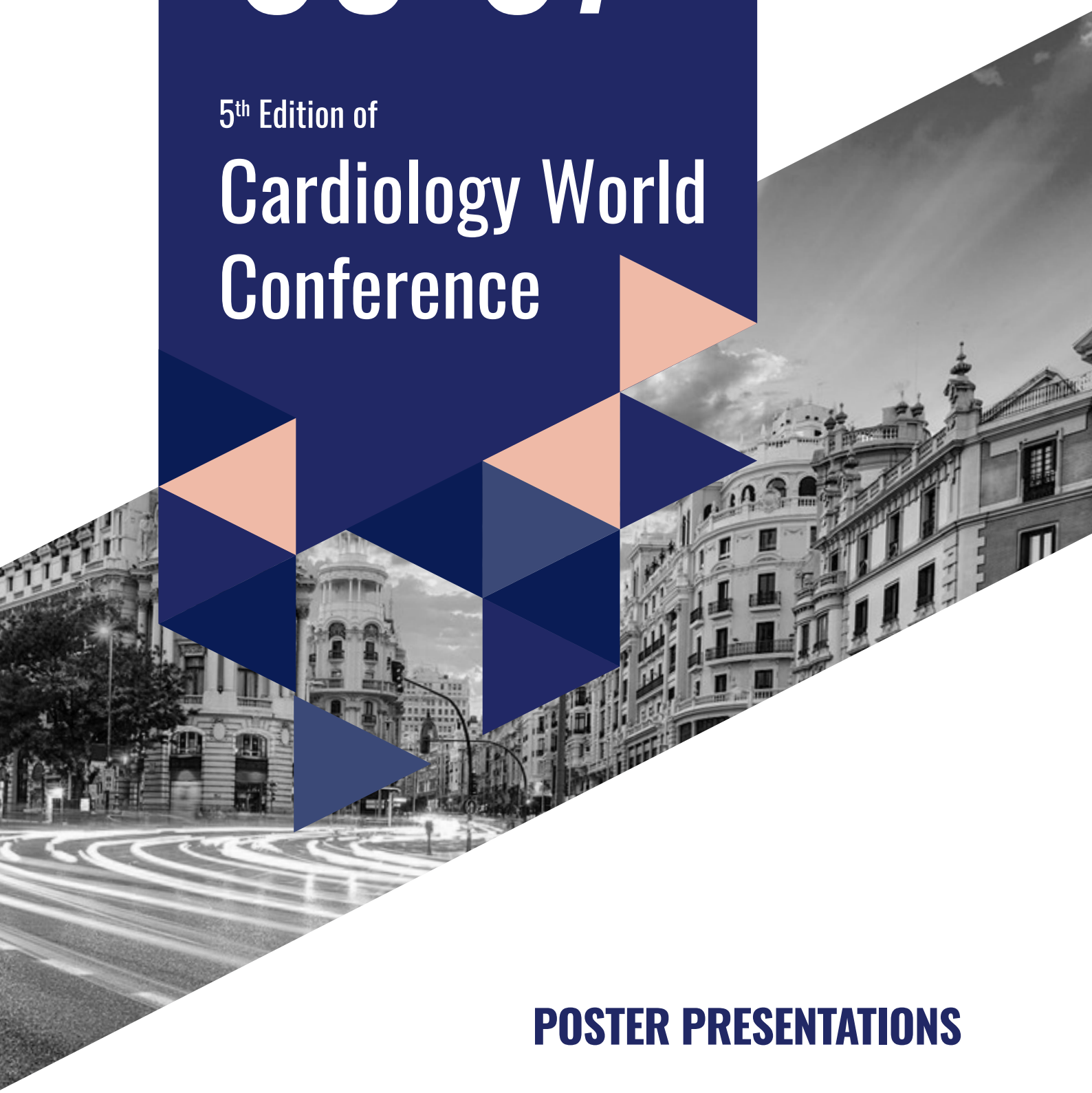


POSTER PRESENTATIONS

Catherine Choi*, Rumaitha Al-Hosni, Paolo Tammaro
Department of Pharmacology, University of Oxford, Oxford, United Kingdom

Molecular basis of modulation of the vascular TMEM16A channel by GPCR pathways: Therapeutic potential for control of artery tone

Introduction: The TMEM16A channel is a Ca^{2+}-activated Cl^- channel (CaCC) highly expressed in mammalian arterial smooth muscle. The channel connects Ca^{2+} release triggered by Gq Protein-Coupled Receptor (GqPCR) activation with membrane depolarisation and smooth muscle contraction. The channel is a proposed drug target for vascular diseases such as hypertension and stroke. While the activation of the channel by Inositol 3-Phosphate (IP_3)-mediated Ca^{2+} release is well established, whether other GPCR signalling pathways modulate the channel is poorly defined. The aim of this study is to define the GPCR signalling pathways that control TMEM16A channel activity and elucidate the physiological significance of these mechanisms with emphasis on the role of G-protein βγ subunits.

Materials and Methods: Whole-cell patch-clamp electrophysiology and assessment of the isometric force of isolated artery rings (wire myography) were used to gain insights into the mechanisms of TMEM16A channel regulation following GPCR activation.

Results: The TMEM16A channel heterologously expressed in Human Embryonic Kidney 293 T (HEK-293T) cells gave rise to large outwardly rectifying currents similar to CaCC currents observed in arterial smooth muscle cells. Co-expression of TMEM16A channel with the α1 adrenoceptor (a GqPCR receptor) in HEK-293T cells gave rise to Cl^- currents in response to phenylephrine, an α1 adrenoceptor agonist. Inhibition of βγ subunits with gallein did not affect the properties of the TMEM16A current in both the absence or presence of unstimulated α1 adrenoceptor. When the α1 adrenoceptor was stimulated with phenylephrine, however, gallein dampened the activation of the TMEM16A current by the agonist. Furthermore, the inclusion of βγ subunits in the pipette solution potentiated the TMEM16A current. Unexpectedly, treatment of isolated rat aortic rings with gallein did not affect the response of the vessel to phenylephrine.

Conclusions: The study reveals that the TMEM16A channel is controlled by the βγ subunit during the activation of the α1 adrenoceptor. In isolated aortic rings, inhibition of βγ subunits did not result in an altered response to phenylephrine, possibly because multiple membrane currents are modulated by βγ subunits counteracting their contribution to vessel tone.

Audience Take Away Notes

- This is a basic research project focused on the mechanisms of regulation of the vascular TMEM16A chloride channel by GPCR pathways. The audience will learn about the potential for therapeutic exploitation of the TMEM16A channel for the control of artery tone.
- The advanced approaches used in this project can be applied to the study of ion channels in a variety of cardiovascular cell types, helping colleagues to implement new approaches in their own cellular pharmacology research.
- Understanding the regulatory mechanisms of ion channels like TMEM16A can help develop more targeted, accurate therapeutic strategies for managing cardiovascular diseases including hypertension and stroke.

- This poster is likely to attract the interest of conference participants broadly involved in research of pathophysiology and pharmacology of cardiovascular ion channels.

Biography

Catherine Choi studied Integrated Pharmacology and Physiology at King's College London, United Kingdom and graduated as MSci in 2017. She then joined the research group of Professor Paolo Tammaro at the Department of Pharmacology, University of Oxford.

David W. Yaffee[1,2]* MD, Mario Katigbak[3] MD, Daniel Fusco[1,2] MD, Sabet W. Hashim[1] MD

[1]Cardiac Surgery, Hartford HealthCare Heart and Vascular Institute, Hartford, CT, USA

[2]Cardiac Surgery, University of Connecticut School of Medicine, Farmington, CT, USA

[3]Thoracic Surgery, Hartford Hospital, Hartford, CT, USA

Treatment of atrio-esophageal fistula following epicardial ablation for atrial fibrillation

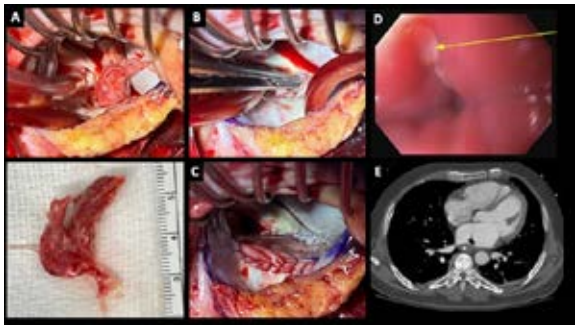
Atrio-esophageal fistula is a rare but life-threatening complication of epicardial atrial ablation. Concomitant surgical repair of the heart and esophagus carries a high morbidity and mortality, especially when repair is attempted without cardiopulmonary bypass. We report the presentation and management of a case of atrio-esophageal fistula following surgical epicardial ablation for atrial fibrillation.

The patient is a 58-year-old male with permanent atrial fibrillation, who presented to the emergency department with acute onset left-sided weakness, four weeks after minimally-invasive epicardial radio-frequency ablation. He was found to have polymicrobial bacteremia, and brain imaging revealed scattered cerebral and cerebellar infarcts, as well as intracerebral air. Computed tomography of the chest demonstrated a loculated air pocket inside the left atrium along the posterior wall (Figure 1E), consistent with atrio-esophageal fistula. The patient was taken to the operating room for repair of left atrial fistula utilizing cardiopulmonary bypass with cardioplegic arrest of the heart. The left atrium was opened revealing a 4cm vegetation adherent to a 1cm defect in the posterior left atrial wall (Figure 1A, 1B). The atrial tissue was thin and friable and did not hold sutures. The defect was therefore excluded using a bovine pericardial overlay patch encompassing the entire left atrial posterior between the pulmonary veins (Figure 1C). Subsequent esophagoduodenoscopy identified a pinhole esophageal perforation at 30cm from the incisors (Figure 1D). The perforation was treated with a covered esophageal stent. The patient was discharged to a stroke rehabilitation center on postoperative day 7, tolerating a soft diet.

Effective and safe treatment of atrio-esophageal fistula was achieved with closure of the left atrial defect utilizing cardiopulmonary bypass with the heart arrested to minimize risk of cardio-embolization. When feasible, delaying esophageal intervention may reduce morbidity, especially when managed with esophageal stenting as compared to open surgical repair.

Figure 1

Intraoperative images of the left atrial vegetation (A), posterior left atrial defect (B), and bovine pericardial patch repair of left atrium (C). Esophagoduodenoscopy image of esophageal perforation at 30cm from the incisors (D). Contrast-enhanced computed tomography image demonstrating loculation of air and vegetation in the left atrium concerning for atrio-esophageal fistula (E).



Biography

Dr. Yaffee completed his medical education and cardiac surgical training at New York University School of Medicine. He is the Surgical Director of the Endocarditis Program, the Hypertrophic Cardiomyopathy Program, and the Acute Mechanical Circulatory Support Program at the Hartford HealthCare Heart and Vascular Institute and Assistant Professor of Surgery at the University of Connecticut School of Medicine. He is the primary author on numerous peer-reviewed publications and international presentations and has acted as a peer reviewer and invited discussant.

Dr. Hsuu Myat Moe Aung[1]*, Dr. Ronald Manorekang[2], Dr. Ayla Ozbey[3], Dr. Hossamaldin Abuomara[4]

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[3]Foundation Trainee, Yorkshire, United Kingdome
[4]Consultant Interventional Cardiologist, West Yorkshire, United Kingdom

Secondary prevention measure, specifically HBA1C and lipid profile, following an acute myocardial infarction audit

Background: Hypercholesterolaemia and poor blood glucose control are well known risk factors for developing Myocardial Infarction (MI). Preventative measures have been incorporated into several guidelines around the world. We aim to review our performance in adhering to the current guidelines used in our Calderdale and Huddersfield Hospitals NHS Trust, namely European Society of Cardiology (ESC) and the National institute for Health and Care (NICE).

Method: We conducted a retrospective analysis of patients who were admitted from 1st October 2022 to 31st December 2022 with a diagnosis of a myocardial infarction. We expect patients to have their LDL level checked within 48 hours of hospital admission, discharged with a maximally tolerated dose of a high intensity statin, and to have a repeat level taken in 8 weeks post MI. For blood glucose control, HBA1C level taken anytime during inpatient or within 6 months prior to the admission date. HBA1C level of 48mmol/mol in non-diabetic patients and >53 mmol/mol for known diabetes, were chosen as a cut off for a local Diabetes Specialist Nurse (DSN) referral. Patients in the pre-diabetes category, level of 42-47 mmol/mol, mandates a note to the general practitioner on the discharge letter.

Result: Lipid profile was checked within 48 hours of admission in 121 (61%) patients. Of those who had it checked, 71 (59%) patients had a repeat level in 8 weeks. Amongst the 71 patients, LDL was not in target in 40 (56%) patients, but only 20 (28%) patients was actioned by clinicians.

Out of 200 patients, 53 (27%) patients were not on a high intensity statin when discharged from hospital. There was an established reason for 29 (56%) patients (table 1), but none documented for the remaining 25 (44%) patients.

HBA1C level was checked in 135 (68%) patients. 39 (29%) patients were known diabetic whilst the remaining 96 (71%) patients had no prior diagnosis of diabetes mellitus (table 2). Of the 39 (29%) patients who were known diabetic, 33 (84%) did not meet the target HBA1C level of <53 mmol/mol but only 13 (39%) of them were actioned by clinicians. 33 (34%) patients met the threshold for a diagnosis of diabetes mellitus amongst those with no prior diabetes history, but only 5 (15%) patients were actioned. 25 (26%) patients had HBA1C level between 42-47mmol/mol which comes into pre-diabetic category, but none of them was actioned.

Conclusion: Although, we are addressing to improve the secondary prevention measure controlling cholesterol and blood glucose following a myocardial infarction, there is still room for improvement.

Reasons on why high intensity statin dose was unmet	Number of patients (n=53)
Renal impairment	10
Liver impairment	2
Old age or palliative care	11
Drug intolerance	6
Unclear reason	25

Table 1. Reasons on why patients were not on a maximum dose of high intensity statin on discharge.

	Known diabetic (n=39)	No prior diabetes diagnosis (=96)
Abnormal result (>53mmol/mol for known diabetic; >42mmol/mol for no prior diabetes diagnosis)	33	33
Actioned	13	5

Table 2. Abnormal HBA1C result

Audience Take Away Notes

- To remind the importance of secondary prevention following myocardial infarction, specifically lipid and blood glucose control
- The management protocol depending on the cholesterol and Haemoglobin A1C levels
- The area for improvement in practice aiming towards effective and efficient secondary prevention

Biography

Dr. Hsuu Myat Moe Aung studied medicine and graduated from University of Medicine 2, Yangon, Myanmar. Currently working as Internal Medicine Trainee in NHS (National Health Service) under Health Education England.

Lucas Chronis[1]*, Braeden Hill[1], Laura Guzman[1], Nicholas Grubic[1,2], Marie-France Hetu[1], Joshua Durbin[3,4], Amer Johri[1,3,4]

[1]Department of Medicine, Cardiovascular Imaging Network at Queen's (CINQ), Queen's University, Kingston, Ontario, Canada
[2]Dalla Lana School of Public Health, University of Toronto, Toronto, Canada
[3]Kingston General Hospital, Kingston, Ontario, Canada
[4]Hotel Dieu Hospital, Kingston, Ontario, Canada

The 6-minute walk test modifies the New York heart association classification of hypertrophic obstructive cardiomyopathy and congestive heart failure patients

Background: The New York Heart Association (NYHA) classification system is a subjective assessment tool used by physicians to evaluate the functional status of patients. In the era of novel pharmacologic treatments for Hypertrophic Obstructive Cardiomyopathy (HOCM), it is commonly used to aid treatment decision-making. However, the NYHA scale has known limitations in discerning functional impairment due to its subjective nature, lack of standardized methodology in assigning NYHA classes, and consequently poor performance in clinical settings. The objective of this study was to determine whether the addition of an objective measurement, the 6-Minute Walk Test (6MWT), reclassified the NYHA category of patients with HOCM and Congestive Heart Failure (CHF) to improve the accuracy of NYHA classification as a marker of functional status.

Methods: This was a pilot cross-sectional analysis of 17 adult (≥18 years old) patients diagnosed with HOCM and CHF based on genetic or echocardiographic findings. Patients completed a brief demographic survey followed by a 6MWT. Their NYHA classification pre-6MWT was based on the cardiologist assessment. The 6-Minute Walk Distance (6MWD) of all patients was recorded, and this information was provided to the cardiologist who was subsequently asked whether the achieved 6MWD changed their assessment of the patient's NYHA class, given that these two variables are inversely correlated. The proportion of patients reclassified from one NYHA class to another between their pre- and post-test assessments was calculated, and the relationship between 6MWD and the NYHA classification was evaluated.

Results: A total of 17 patients were enrolled and completed the 6MWT. Prior to the 6MWT, 8 patients were classified as NYHA Class 1 (47%), with walking distances ranging from 283 to 605 metres. Five patients were classified as NYHA Class 2 (29%), with walking distances between 234 and 465 metres, whereas 3 patients were classified as NYHA Class 3 (18%), with walking distances between 195 and 500 metres, and 1 patient was classified as NYHA Class 4 (6%), with a walking distance of 360 metres. A scatter plot of the 6MWD according to pre-6MWT NYHA Class is shown in Figure 1. Substantial variability in 6MWD was observed across pre-6MWT NYHA Classes 1, 2 and 3. When the NYHA classification of patients pre-6MWT was compared with their NYHA classification post-6MWT, the vast majority of patients (14/17; 82%) had either the same or worse functional status (Figure 2). Most patients (9/17; 53%) were re-classified to a higher NYHA Class following the 6MWT. Furthermore, patients who were re-classified were mainly those with NYHA Class 1 pre-6MWT (5/8; 63%) and Class 2 pre-6MWT (4/5; 80%).

Conclusion: The results from this pilot study confirm that the NYHA is a poor marker of functional status, represented by high variability in the corresponding 6MWD achieved. The addition of a 6MWT to the NYHA assessment of cardiomyopathy patients modified their NYHA classification.

Figure 1

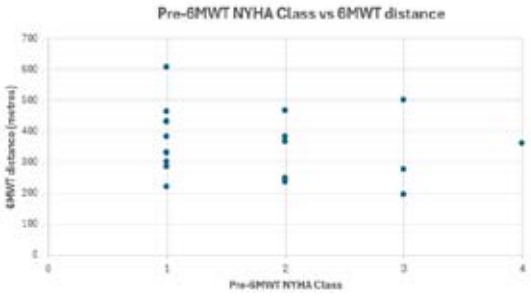
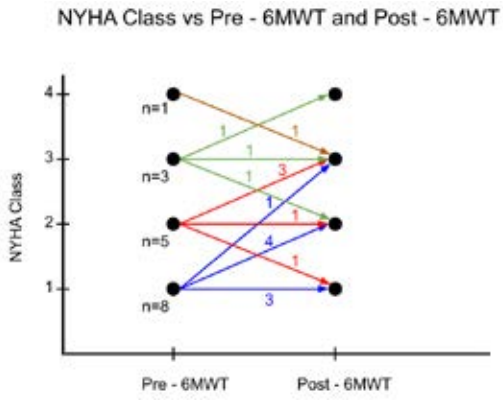


Figure 2



Audience Take Away Notes

- Variability in the 6MWD was high among patients with NYHA Classes 1 and 2
- Distinguishing between mildly presenting patients with NYHA Classes 1 and 2 may be more challenging and subjective than higher NYHA classes
- Following the 6MWT, the majority of patients were re-classified and had either the same or worse functional status
- Patients who were re-classified post-6MWT were mainly those with NYHA Classes 1 and 2
- Addition of a 6MWT as an objective measure to the NYHA classification enhanced functional status assessment of HOCM and CHF patients

Biography

Lucas Chronis is a Queen's University Chancellor's Scholar and a Health Sciences student at Queen's University in Canada. He has a keen interest in cardiovascular research and is a current research trainee in the Cardiovascular Imaging Network at Queen's (CINQ) Lab of Dr. Amer Johri, cardiologist and principal investigator.

Maheswara Satya GR Golla* MD, Karen Sabuya, Mary Olayan, Praveena Madapathi, MD

Guam Regional Medical City, Dededo, Guam, USA

A comparative study of fixed fluoroscopy-Assisted and portable C-arm-assisted coronary catheterization and intervention: Evaluating procedural outcomes and radiation exposure

Background: Approximately 20.1 million adults in the United States are affected by coronary artery disease. Every year over 4 million coronary angiograms are being performed in Europe and the USA. Over 1700 cardiac catheterization laboratories were present across the United States. It is not uncommon to observe repairs of cath lab fluoroscopy equipment, which can impact the workflow in hospitals and, consequently, patient care. Portable C-arms are widely accessible in many hospitals, providing temporary assistance in conducting coronary procedures. The radiation effects and procedural outcomes of C-arm assisted coronary angiogram compared to fluoroscopic assisted coronary procedures remain unknown.

Methods: From August 2023 to November 2023, we conducted an assessment involving 89 patients who underwent coronary angiograms and interventions. Our analysis encompassed a comparison of demographics, total entrance skin dose (mGy), total fluoroscopy time, total intravenous contrast use, periprocedural complications, successful door-to-balloon time for ST-elevation MI, and mortality associated with coronary catheterizations performed using fixed cath lab fluoroscopy versus portable C-arm fluoroscopy.

Results: A total of 89 patients were included for analysis. Among them, 60 coronary angiograms were performed with fixed cath lab fluoroscopy, and 29 coronary angiograms were performed through portable C-arm fluoroscopy. Baseline demographics showed patients who underwent angiograms with portable C-arm had more diabetes and chronic kidney disease. There were no significant differences in age, hypertension, hyperlipidemia, history of stroke, history of MI, acute coronary syndrome, ST-elevation MI presentation, and radial access between the two groups (table).

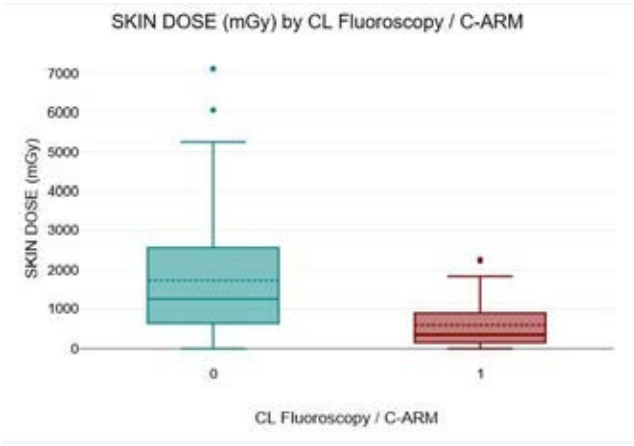
There was a significantly low total entrance skin dose in patients who underwent angiogram with portable C-arm compared to fixed cath lab fluoroscopy (584 mGy vs 1736 mGy; p=0.001) (picture). There was no significant difference in total fluoro time, total contrast use, patients who underwent PCI, perioperative cardiac arrest, stroke before the discharge, mortality, or successful door-to-balloon time less than 90 min for STEMI in between groups. One patient died in a fixed cath lab fluoroscopy group for acute coronary syndrome and cardiogenic shock. There were six patients in the fixed cath lab fluoroscopy and four patients in the portable C-arm group who underwent revascularization for STEMI.

Conclusion: Portable C-arm fluoroscopy demonstrates a reduced total entrance skin dose in comparison to fixed cath lab fluoroscopy. This alternative may prove valuable in emergency cath lab procedures when regular fixed fluoroscopy is unavailable, offering a potential solution without compromising patient safety.

Patient Demographics			
	Cath Lab Fluoroscopy (n=60)	C- arm (n= 29)	P-Value
Age (Yrs)	61.6±10	58.5±11	0.3
Hypertension	85%	86%	0.8
Hyperlipidemia	40%	55%	0.3
Diabetes	54%	76%	0.05
History of stroke	5%	6%	0.7
History of chronic kidney disease	12%	31%	0.02
History of myocardial infarction	20%	10%	0.1
Radial access	80%	79%	0.9
Groin device closure (total 20 cases)	85%	72%	0.8
STEMI presentation (6 and 4)	10%	14%	0.7
NSTEMI presentation	77%	86%	0.8

STUDY OUTCOMES			
	Cath Lab Fluoroscopy (n=60)	C- arm (n= 29)	P-Value
Total Entrance Skin dose(mGy)	1736	584	0.001
Total fluro time (min)	15	16	0.8
Contrast use (ml)	147	131	0.4
Patients referred to CABG	11%	44%	0.04
Patients underwent PCI	55%	41%	0.17
Mortality	3%	0	0.4
STEMI door to balloon (5 and 2) <90min	83%	50%	0.26
Stroke before discharge	0	3%	0.1
Perioperative Cardiac arrest	3%	0	0.3

CABG: Coronary artery bypass graft; PCI: Percutaneous coronary intervention; STEMI: ST-elevation MI



Audience Take Away Notes

- Utilizing a Portable C-arm in the cath lab is linked to a reduction in procedure-related radiation exposure.
- Employing a portable C-arm is not correlated with a noteworthy increase in contrast usage or periprocedural complications such as myocardial infarction or mortality.
- The utilization of a portable C-arm in the cath lab can enhance workflow, especially in emergencies when fixed fluoroscopy is not operational.

Biography

Dr. Maheswara Golla is an interventional cardiologist and holds several board certifications, which include the American Board of Endovascular Interventions (ABEI), American Board of Vascular Medicine (ABVM), Registered Physician in Vascular Interpretation (RPVI), American Board of Internal Medicine (ABIM)–Interventional Cardiology, American Board of Internal Medicine (ABIM)–Cardiovascular Medicine, American Board of Internal Medicine (ABIM)–Internal Medicine, Certification Board of Nuclear Cardiology (CBNC), Certification Board of Cardiovascular Computed Tomography (CBCCT), and the National Board of Echocardiography (NBE). Dr. Golla's commitment to advancing medical knowledge is evident through his prolific authorship of scientific articles in peer-reviewed journals and several book chapters.

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There is no association between measures of obesity and cardiometabolic risk indices in this Nigerian population

Background: Cardiovascular diseases are the world's number one cause of death. Various scoring systems and indicators, biochemical and otherwise, have arisen to help estimate the cardiovascular risk of populations, thus helping with screening and implementing measures to attenuate this risk. Obesity, either general or central, has long been associated in various populations with increased cardiovascular morbidity and mortality. However, in a country like Nigeria, 80% of the population lacks health insurance coverage, and it behoves us as healthcare professionals to find cheaper means of estimating an individual's cardiovascular risk profile.

Our aim in conducting this study is to identify an association between various measures of obesity (body mass index, waist circumference, and waist-to-height ratio) and markers of cardiometabolic risk among patients attending a cardiology hospital in Lagos, Nigeria.

Methods: This is a retrospective study involving the analysis of the medical records of 206 newly presenting patients of both sexes at Meridian Cardiac Center over one year with complete anthropometric and laboratory data. The measures of obesity were each made independent variables. At the same time, Castelli Risk Indices (I and II), Atherogenic Index of Plasma (AIP) and the Triglyceride/HDL-cholesterol ratio were deemed dependent variables. The association between these variables was assessed using the Chi-square test. P-value <0.05 was considered statistically significant.

Results: The mean age of the study population was 53.33±14.72 years, with 53.4% being males. As for the measures of obesity, 186 persons (90.3%) had an at-risk waist-to-height ratio, 174 (84.5%) had an at-risk waist circumference, and 106 (51.5%) had a BMI of at least 30%. As shown in Table 1, there was no statistically significant association between Castelli Risk Indices, TG/HDL, and AIP and the measures of obesity.

Conclusions: No association was discovered between the various measures of obesity and markers of cardiometabolic risk in this Nigerian population.

Clinical variables	WTHR		p-value	Waist circumference		p-value	Body Mass Index		p-value
	At-risk (n=186) N(%)	Normal (n=20) N(%)		At-risk (n=174) N(%)	Normal (n=32) N(%)		Not obese (n=100) N(%)	Obese (n=106) N(%)	
CRI-I									
– **High**	101 (54.3)	13 (65.0)	0.360	99 (56.9)	15 (46.9)	0.295	58 (58.0)	56 (52.8)	0.456
– **Normal**	85 (45.7)	7 (35.0)		75 (43.1)	17 (53.1)		42 (42.0)	50 (47.2)	
CRI-II									
– **High**	25 (13.4)	3 (15.0)	0.847	25 (14.4)	3 (9.4)	0.449	11 (11.0)	17 (16.0)	0.292
– **Normal**	161 (86.6)	17 (85.0)		149 (85.6)	29 (90.6)		89 (89.0)	89 (84.0)	
TG/HDL									
– **At-risk**	72 (38.7)	5 (25.0)	0.229	66 (37.9)	11 (34.4)	0.702	33 (33.0)	44 (41.5)	0.207
– **Normal**	114 (61.3)	15 (75.0)		108 (62.1)	21 (65.6)		67 (67.0)	62 (58.5)	
AIP									
– **High**	152 (81.7)	15 (75.0)	0.752	143 (82.2)	24 (75.0)	0.305	82 (82.0)	85 (80.2)	0.353
– **Intermediate**	26 (14.0)	4 (20.0)		25 (14.4)	5 (15.6)		12 (12.0)	18 (17.0)	
– **Low**	8 (4.3)	1 (5.0)		6 (3.4)	3 (9.4)		6 (6.0)	3 (2.8)	

Audience Take Away Notes

- This research aimed to find less expensive means of estimating cardiometabolic risk in the Nigerian population.
- Our findings contradict existing literature drawing associations between obesity and cardiometabolic risk.
- Further research is required to find anthropometric measures that would reliably estimate the Nigerian population's cardiometabolic risk.

Biography

Dr. Ugochi Chinenye Okorafor graduated from the University of Ibadan, Ibadan, Nigeria in 2021 with a distinction in psychiatry. She completed her housemanship at 68 Nigerian Army Reference Hospital, Yaba, Lagos, Nigeria and currently works as a medical officer at Meridian Cardiac Center, Festac Town, Lagos, Nigeria. She currently works as a Junior Clinical Fellow in Acute Speciality Medicine at King's College Hospital, Denmark Hill, London.

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Exploring the relationship between erythrocyte aggregation properties and sodium homeostasis in subjects with arterial hypertension

Introduction: Hypertension is the primary preventable factor contributing to premature mortality and disability on a global scale – and a major risk factor for cardiovascular disease. ~ 50% of patients present with a 'salt-sensitive' hypertensive phenotype. Alongside this ~30% of individuals exhibit a 'low-renin' hypertensive phenotype. Renin is a marker of sodium retention and volume expansion. There is currently no biomarker clinically validated to be able to measure salt-induced sensitivity in humans at a cellular level. However, a novel test for Erythrocyte Glycocalyx Sensitivity to Sodium (eGCSS) has been suggested as a direct assessment of sodium-induced harm to erythrocyte surfaces, serving as a marker of the endothelium's sensitivity to salt in humans.

Aims: To investigate the relationship between eGCSS and renin and to investigate the effects of pharmacological interventions on eGCSS.

Methods: Patients were recruited from hypertension outpatient services at Guys and St. Thomas' Hospital (GSTT). Consent forms were signed and baseline measurements were taken including blood pressure and renin levels. The eGCSS test was carried out using 50µl of venous blood with commercially available kits. In a subgroup (n=10), pharmacological interventions were started and the eGCSS test was performed at baseline and after 4 weeks of treatment.

Results: 194 individuals (mean age 43.4±12.31 years old) completed the study. 62.4% were male. 40.4% were black. The mean baseline SBP was 143.68±16.85mmHg and the mean baseline DBP was 90.17±11.89mmHg. There was a negative correlation between eGCSS and plasmin renin (□=-0.16, P<0.05). eGCSS increased slightly in patients post-diuretic treatment for 4 weeks and decreased slightly in patients post non-diuretic treatment, neither of which reached statistical significance.

Discussion: Renin levels serve as a surrogate marker for salt sensitivity, but alternative measures like the eGCSS test offer promise and potential cost-savings, correlating cellular damage with sodium retention in hypertension. With further exploration in larger sample sizes, it may be possible to validate the utility of the eGCSS test for routine clinical application.

Audience Take Away Notes

- They will learn about a novel test (eGCSS) suggested to be used as a direct assessment of sodium-induced harm to erythrocyte surfaces, serving as a marker of the endothelium's sensitivity to salt in humans.
- With further exploration in larger sample sizes, it may be possible to validate the utility of the eGCSS test for routine clinical application.
- The audience will be able to use this knowledge to improve the treatment of hypertension.
- This research could be extrapolated to non-UK populations thus enhancing patient outcomes and quality of life for those suffering from hypertension worldwide.

Biography

Shreeya Mehta is a medical student studying at King's College London. She has just completed her iBSc in Cardiovascular Medicine and is due to start her 4th Year of medical school at King's College London in August 2024. She is the current President of King's College London Women in Medicine Society and has a special interest in Cardiology. Keen to present her work at international conferences, she is also eager to learn from leading experts. Passionate about advancing heart health, she engages in cutting-edge research. Shreeya aspires to become an interventional cardiologist, focusing on innovative treatments and compassionate patient care.

Dongyan Wang
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Personalized care enhances quality of life for long-term tracheostomy patients

Objective: This study aims to provide an overview of recent research advancements in personalized care for tracheostomy patients and explore how personalized care can enhance the quality of life for patients with long-term tracheostomy.

Methods and Materials: Through literature review, we selected recent research papers on personalized care for tracheostomy patients. The chosen literature covers a range of aspects, including respiratory therapy, pain management, infection control, and rehabilitation plans. The selected articles include empirical studies, clinical trials, and technological innovations.

Results: Core of Personalized Care: The crux of personalized care lies in a comprehensive assessment of individual differences, including physiological, psychological, and social factors. In-depth understanding of patient needs allows healthcare teams to develop more targeted care plans.

Personalized Respiratory Therapy: Key factors in improving ventilation effectiveness and comfort include adjusting tracheostomy tube size and shape, employing advanced ventilation equipment, and utilizing intelligent monitoring systems.

Multifaceted Rehabilitation Plans: Designing personalized rehabilitation plans based on individual patient conditions, encompassing physical rehabilitation, speech therapy, and psychological rehabilitation, to enhance overall life functionality.

Conclusion: Personalized care for tracheostomy patients is pivotal in improving their quality of life during long-term retention. Through a profound understanding of individual characteristics and implementing personalized care strategies in respiratory therapy, pain management, infection control, and rehabilitation plans, significant enhancements in patients' life experiences can be achieved. Future research should delve deeper into the effectiveness of different care interventions to further refine personalized care plans for tracheostomy patients, providing more effective guidance for clinical practice.

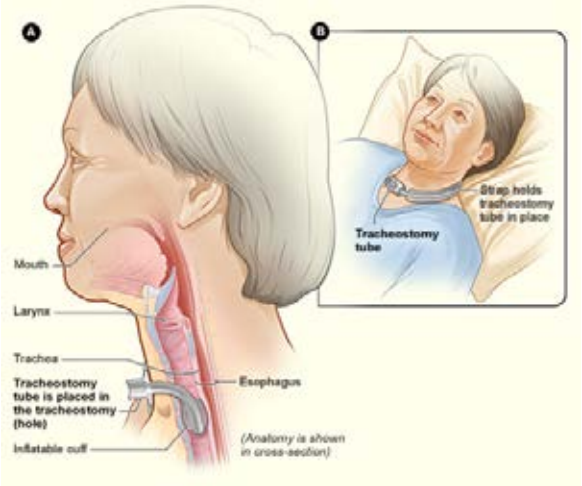

Figure 1 Tracheotomy. Tracheotomy is a surgical airway management procedure which consists of making an incision (cut) on the anterior aspect (front) of the neck and opening a direct airway through an incision in the trachea.

Figure 2 Tracheostomy Rehabilitation Care Program.

Zhongshu Zhou
The thirteenth People's Hospital Of Chongqing

Prognostic value of serum Lp-PLA2, sST2 combined with MRR for recurrent ischemia in STEMI patients treated with PCI

Objective: To investigate the changes of serum Lipoprotein-Associated Phospholipase A2 (Lp-PLA2), Soluble suppression of Tumorigenicity 2 (sST2) and Microcirculatory Resistance Reserve Index (MRR) in patients with ST Segment Elevation Myocardial Infarction (STEMI) after Percutaneous Coronary Intervention (PCI) and their predictive value for re-ischemia after treatment.

Methods: A total of 90 STEMI patients who underwent PCI in our hospital from January 2021 to January 2023 were selected as the study subjects, and re-ischemic recurrence was observed after discharge. According to whether re-ischemia occurred, the patients were divided into ischemia group and non-ischemia group. The expression levels of serum Lp-PLA2, sST2 and MRR were detected before operation. General clinical data such as age, gender, hypertension and diabetes were analyzed in the two groups, and the risk factors affecting postoperative re-ischemia were analyzed by multivariate Logistic analysis. The predictive value of Lp-PLA2, sST2 and MRR in postoperative recurrent ischemia was analyzed combined with Receiver Operating Curve (ROC).

Results: Re-ischemia occurred in 28 patients, accounting for 31.11%. There were no significant differences in age, sex, hypertension, diabetes, smoking and drinking history between the two groups (P>0.05). The proportion of KILLIP≥III, the level of serum Lp-PLA2, sST2, Cr and NT-proBNP in ischemia group were higher than those in non-ischemia group, and Left Ventricular Ejection Fraction (LVEF) and MRR index were lower than those in non-ischemia group, with statistical significance (P<0.05). Multivariate Logistic regression analysis showed that increased proportion of KILLIP≥III patients and the increased levels of Lp-PLA2, sST2, Cr and NT-proBNP were independent risk factors for postoperative re-ischemia, while the increase of LVEF and MRR index was an independent protective factor for postoperative re-ischemia (P<0.05). ROC curve analysis showed that the combined serum Lp-PLA2, sST2 and MRR indexes predicted the area under the curve of re-ischemia in STEMI patients after PCI was 0.812, which was higher than 0.623,0.745 and 0.768 predicted respectively (P<0.05).

Conclusion: The increase of serum Lp-PLA2 and sST2 levels and the decrease of MRR index are risk factors for re-ischemia in STEMI patients after PCI, and their abnormal changes can effectively predict the risk of re-ischemia after PCI.

Keywords: Lipoprotein-Associated Phospholipase A2, Soluble Suppression of Tumorigenicity 2, Microcirculatory Resistance Reserve Index, ST Segment Elevation Myocardial Infarction, Percutaneous Coronary Intervention.

BOOK OF ABSTRACTS

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