

3RD EDITION OF
**CARDIOLOGY WORLD
CONFERENCE**

Collaboration with



14-15 SEPTEMBER, 2022
ONLINE EVENT

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BOOK OF ABSTRACTS

3RD EDITION OF CARDIOLOGY WORLD CONFERENCE

14-15 SEPT

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Welcome Message

Dear participants of the World Conference on Cardiology.

Cardiovascular disease continues to lead the way in complications and deaths among adults around the world. In developed countries, the incidence rate has decreased, while in developing countries, these rates are somewhat different. Numerous international studies are being carried out to improve the diagnosis, treatment and, most importantly, the prevention of cardiovascular diseases. As data accumulates, international recommendations are updated. It is safe to say that international treatment standards are applied in all countries. But there is a lot of work to be done to introduce innovative technologies in cardiology.



I believe that scientific and educational conferences with the exchange of opinions of specialists from different countries are positively reflected in the accumulation of experience in the fight against cardiovascular diseases.

I call on my colleagues to actively participate in the work of the World Conference on Cardiology 2022 and wish you success.

Mekhman Mamedov,
National Research Center for Preventive Medicine,
Russian Federation

A handwritten signature in black ink, appearing to be 'M. Mamedov'.

ABOUT MAGNUS GROUP

Magnus Group (MG) is initiated to meet a need and to pursue collective goals of the scientific community specifically focusing in the field of Sciences, Engineering and technology to endorse exchanging of the ideas & knowledge which facilitate the collaboration between the scientists, academicians and researchers of same field or interdisciplinary research. Magnus group is proficient in organizing conferences, meetings, seminars and workshops with the ingenious and peerless speakers throughout the world providing you and your organization with broad range of networking opportunities to globalize your research and create your own identity. Our conference and workshops can be well titled as 'ocean of knowledge' where you can sail your boat and pick the pearls, leading the way for innovative research and strategies empowering the strength by overwhelming the complications associated with in the respective fields.

Participation from 90 different countries and 1090 different Universities have contributed to the success of our conferences. Our first International Conference was organized on Oncology and Radiology (ICOR) in Dubai, UAE. Our conferences usually run for 2-3 days completely covering Keynote & Oral sessions along with workshops and poster presentations. Our organization runs promptly with dedicated and proficient employees' managing different conferences throughout the world, without compromising service and quality.



ABOUT CARDIO 2022

Magnus Group is ecstatic to invite one and all to its well-established event “4th Edition of Cardiology World Conference (Cardio 2022)” which is going to be held virtually during September 14-15, 2022.

The congress will revolve around the theme “Revealing Innovations in Cardiology for a Healthier Heart.”

The two-day worldwide summit will elucidate the recent trends and advancements in the field of cardiology. We cordially invite eminent researchers, cardiologists, cardiac and cardiothoracic surgeons, healthcare professionals, students from medical schools, professors, nurses, scientists and business professionals to discuss Heart Diseases, Clinical Cardiology, Nuclear Cardiology, Diabetes and the Heart, Sports Cardiology, Cardiac Surgery, Cardiac Nursing, and other topics under a solitary rooftop for a brief but intense period of time. It will be an international meeting featuring a selection of high-quality plenary talks, intriguing keynote sessions, brainstorming panel discussions, informative oral and e-poster sessions as well as a forum for direct contact and knowledge exchange between delegates from academic institutions, hospitals, and industry.



KEYNOTE FORUM

DAY 01

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Mamedov M.N*, Sushkova L.T, Isakov R.V., Kutsenko V.A., Drapkina O.M.

National Medical Research Center for Therapy and Preventive Medicine of the Ministry of Health of Russia, Moscow, Russia

Vladimir State University named after A.G. and N.G. Stoletovs, Vladimir, Russia

Estimation of the predicted ten-year survival rate and the risk of cardiovascular complications in adult population in Russia

Aim: To assess the predicted ten-year survival rate and the risk of cardiovascular complications in adult population in the Vladimir region of the Russia.

Material and methods: A cross-sectional population study included 1200 men and women aged 30-69 years from 5 cities of the Vladimir region. The response to the study was not <80%. In total, 1004 people completed the study. Of these, 346 are men (34.5%) and 658 are women (65.5%). The respondents were interviewed using a standard questionnaire, which includes information on socio-demographic indicators, behavioral risk factors, the presence of somatic diseases, registration of drugs taken and an assessment of psychosomatic status. Instrumental and laboratory studies were performed included in the first stage of the dispensary examination. To assess the risk of cardiovascular diseases, the European SCORE scale was applied. To assess the 10-year survival rate of individuals, the Charlson comorbidity index was used.

Results: Hypertension was detected in 38% of men and 43% of women. Ischemic heart disease among men is registered three times more often than women: 15% and 5% ($p < 0.0001$). Other chronic non-communicable diseases such as diabetes mellitus, chronic obstructive pulmonary disease and malignant tumors were identified separately in no more than 5% of cases. 67% of women had low to moderate Cardiovascular Risk (CVR). 19% of men had high and 10% very high CVR, which turned out to be higher than in women (6% and 0%). The prevalence of the combination of the two diseases was 32.6%. Among men, this indicator is 36.7%, while among women it is 10% less, it was found in every fourth participant in the study (27%) ($p = 0.002$). The combination of three diseases among men was detected in 12%, and among women it was detected in 5.9% of cases ($p < 0.001$). A short ten-year survival rate (21% and <5%) according to the Charlson index was found in less than 10% of men and women. The largest number of respondents had 90% and 77% ten-year survival rates.

Conclusion: In the unorganized population of adults, high and very high CVR was found in every fourth man and only in every 16 women. A short ten-year survival rate according to the Charlson index was found in every tenth respondent, while every second participant had an average ten-year survival rate. The comorbidity of somatic diseases with low and average ten-year survival requires complex interventions and regular monitoring.

Keywords: prevalence, comorbidity of chronic non-communicable diseases, cardiovascular risk, Charlson's index, adults.

Biography:

Professor Mehman Mamedov graduated from the Moscow Medical Academy named after I.M. Sechenov in 1993. He continued his medical residency at the Central Clinical Hospital of the Presidential Administration of the Russian Federation. In 1997 Dr. Mamedov received his PhD degree in the National Research Center for Preventive Medicine of the Ministry of Healthcare of the Russian Federation for research titled "Metabolic syndrome components in patients with arterial hypertension". In 2001 he wrote his doctoral thesis on "Clinical and biochemical features of metabolic syndrome and its pharmacological management". He has been working in the National Medical Research Center for Therapy and Preventive Medicine for 26 years, beginning as a researcher and eventually becoming the head of the scientific laboratory. He is the author of 400 scientific works, 16 monographies in Russian, 4 monographies in English and 3 patents. Hirsch Index: RSCI — 36, Scopus — 6, Web of Science — 6. Under Dr. Mamedov's supervision, 10 PhD and 1 doctoral thesis have been defended. Recently, Professor Mamedov M.N. has initiated 12 research projects, including some presented at the congresses of the American College of Cardiology, the European Society of Cardiology, the World Heart Federation, as well as at other international and national scientific events. Professor Mamedov M.N. annually gives lectures in Russia and other countries. His research interests include: cardiometabolic disorders, lipid metabolism disorders, male health issues, cardiovascular risk assessment and correction, early markers of atherosclerosis, prediabetes and diabetes mellitus, risk factors and cardiovascular disease epidemiology, cardio-oncology, and comorbidities in internal medicine.

Dr. Mamedov is the editor-in-chef of the “International heart and vascular disease journal”, member of the editorial board of the “Cardiology” and “Cardiovascular Prevention and Therapy” journals, head of the Department of Secondary Prevention of Chronic Noncommunicable Diseases of the National Medical Research Center for Therapy and Preventive Medicine, and President of the Cardioprogress Foundation. Professor Mamedov M. was an executive secretary of the Russian National Congress of Cardiology for 6 years, organizing regional and national scientific conferences. He is one of the founders of the International Forum of Cardiology and Internal Medicine, which has been held annually at the Russian Academy of Sciences since 2012. He has letters of appreciation from the head of the Republic of Ingushetia, ministers of health of the Russian Federation, Uzbekistan, Tajikistan, Belarus, the Chechen Republic and the presidents of the Turkish Society of Cardiology, the Association of Internists of Kazakhstan and the National Health League. In 2019, he was awarded with V.D. Shervinsky medal by the President of the Russian Scientific Medical Society of Internal Medicine for his contribution to the development of medical science.



Robert Allan

Division of Cardiology, Weill Cornell Medical College/New York-Presbyterian Hospital

One heart, one mind, one planet behavioral cardiology: The elephant in your living room

A very large empirical database supports the field known variously as behavioral cardiology, cardiac psychology and psychocardiology. A PubMed search of the terms “psychosocial factors and Cardiovascular Disease (CVD)” yields more than 60,000 citations. In 2021, the American Heart Association issued a scientific statement endorsing the importance of such psychosocial factors for CVD as depression, anxiety, social isolation, work stress, anger and posttraumatic stress disorder. Recent research has reported that lifestyle change along with medication is as safe and effective for stable Coronary Artery Disease (CAD) as the more invasive strategy of Percutaneous Coronary Intervention (PCI) with stent placement, hitherto a mainstay of cardiac intervention. CAD is a disorder with a major lifestyle component: A heart healthy diet (optimally, whole foods plant based), regular exercise, cigarette cessation, and management of psychosocial factors are critical for both the onset and outcome from CAD. Psychosocial intervention in a group therapy format has been shown to improve psychosocial and cardiac risk factors, as well as reduce recurrent cardiac events.

Audience Take Away:

- The importance of psychosocial factors for the onset and outcome of CVD
- Understand which psychosocial factors have been empirically linked with CVD
- Improve the efficacy of their practices by including assessment and referral for adverse psychosocial factors
- Possibly develop intervention strategies/clinical trials in behavioral cardiology

Biography:

Robert Allan, PhD is an internationally recognized cardiac psychologist. He has held an appointment in the Division of Cardiology at Weill Cornell Medical College/New York-Presbyterian Hospital for nearly four decades. Dr. Allan is co-author/co-editor of the first and second editions of *Heart and Mind: the Practice of Cardiac Psychology* (American Psychological Association, 1996, 2012), the seminal book in the field, as well as many articles in leading psychology and medical journals. Allan has conducted individual psychotherapy with hundreds of cardiac patients and facilitated more than 2,500 cardiac support groups. He has led the Preventing Heart Disease program on the stepdown coronary care unit at Weill Cornell Medical Center for more than 25 years, where he is currently leading a psychosocial intervention study for Takotsubo patients. Robert is also a musician and video artist.

SPEAKERS

DAY 01

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Timothy Abrahams

Cardiology, Monash Health, Melbourne, Victoria, Australia

Prescription trends and healthcare expenditure of beta-blockers in heart failure with reduced ejection fraction in Australia in the last five years

Introduction: Heart Failure with Reduced Ejection Fraction (HFrEF) remains one of the leading causes of mortality worldwide and in Australia, and places significant burden on healthcare costs. Beta-Blockers are guideline therapy in HFrEF but it is unclear how this evidence has been incorporated into patient care across the spectrum of beta-blocker prescribers. As new heart failure therapies become more incorporated into guidelines it is unclear what effect this may have on prescription trends of beta blockers.

Purpose: We sought to describe the prescribing trends and healthcare costs of beta-blocker therapy in HFrEF patients in Australia over the last five years using real world prescribing data.

Method: The latest statistical data collected by the Pharmaceutical Benefit Scheme (PBS), Australia was reviewed. PBS codes for beta blockers carvedilol, nebivolol, Metoprolol XR and Bisoprolol were selected due to their sole PBS indication being in HFrEF. Yearly total prescriptions and cost were then compared between all four beta-blockers. Linear trend modelling was used to observe general trends over the data collection period.

Results: Total yearly beta-blocker prescriptions for HFrEF have increased 39% in 5 years with over 2.4 million prescriptions made in 2021. Total yearly beta-blocker cost has increased 27% in 5 years and Australia now spends over \$55 million on beta-blockers for heart failure therapy every year. Whilst Australia spends in total the most money on Bisoprolol each year (\$24,748,305 AUD in 2021), this is mainly due to its vastly more prevalent prescription, and it is in fact the cheapest beta-blocker per prescription made on average (\$15.97 AUD per script). In contrast, Nebivolol represents a disproportionate amount of healthcare expenditure in Australia. Whilst only representing 19% of total prescriptions nebivolol accounts for 34% of total spending and remains the dearest beta-blocker per script at \$40.92 AUD in 2021.

Conclusion: Bisoprolol is the cheapest and most prescribed beta-blocker in Australia for HFrEF. Nebivolol represents a disproportionate amount of spending whilst representing a small proportion of total prescriptions. Overall beta-blocker prescriptions continue to rise and over \$55 million Australian dollars each year are spent on beta blocker therapy for heart failure patients in Australia.

Audience Take Away:

- Changes in prescription trends of beta blockers in HFrEF in Australia
- Cost burden and efficacy of beta blockers in HFrEF in Australia
- Make more informed decision about cost effectiveness of beta blocker therapy in HFrEF

Biography:

Dr Timothy Abrahams studied at Monash University and graduated with Honours as Bachelor of Medicine/ Bachelor of Surgery. He is completing his physician training in a large tertiary hospital in Melbourne, Australia. He has published about prescription trends in anti-platelet therapy in peer reviewed journals.



Dae Wook Lee

Medical Franchise Head for Cardiology, Renal, Metabolism, Neuroscience, and Gene Therapy, Novartis, South Korea

Powering biopharma research with data and genomics – the time is now

The rapid success of using human big data has been a novel trend for drug development and discovery. The human genetic techniques including Coding GWAS are generically associated with diseases whereas the expansion of Human Data Ecosystem in multi-geographic regions provide valuable insights on disease specific cohorts and genomic data. The investment on human genome research and analytics based on health records is expanding globally, with a more strategic approach to accessing human data. The research into Big Human Data Investment has their continuing synergistic influence for testing or generation and validation of hypothesis from the understanding of diseases to experimental validation in human samples and data.

In addition, the data from population specific variants could identify novel genetic associations with diseases, and also, the compilation of big data has a huge impact on the pharmaceutical industry's research methods by using rapid analysis on demand with sufficient statistical power to derive future potential hypotheses. Since the deliverable from biobank analysis provides both disease risk and safety in the general population, the Biobank scale genomic data identifies rare variants such as the Loss of Function (LoF) variant that is associated with health.

In subgroups, the functional variants (Missense, LoF) accelerate medical development by reinforcing already validated and enriched genomic data sets where the potential of providing the opportunities for new drug indications and discovery. With more innovation and evolution we are closer to greater successes in the generation of diverse population genome data and at the same time deriving safety information and discovering new indications for drugs.

Biography:

Dr. Dae Wook Lee is a Head of Medical Portfolio Management in Rare disease, Gastroenterology, PDT, Neuroscience and New Molecular entities from Asia-Pacific Region of Takeda Pharmaceutical Ltd Pte. He 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 additional BSc Biomedical Science degree. Dr. Dae Wook Lee's main clinical research interests lie in genetics and novel medical statistical analysis of Rare Diseases including Rare Hematology, Rare Metabolic Diseases including Fabry & Gaucher's Disease, Rare Immunology including Hereditary AngioEdema (HAE), etiology and pathophysiology of inflammatory bowel disease (IBD), and Rare Neuroscience disease including Paediatric Epilepsy and Narcolepsy Type 1. One of his recent publications include Network Meta-analysis of Comparative Efficacy and Safety of Combination Therapy with Angiotensin II Receptor Blockers and Amlodipine in Asian Hypertensive Patients, and Retrospective analysis of Ulcerative Colitis Real-world Evidence implementing exploratory Propensity Score Matching (PSM) Analysis. Dr. Dae Wook Lee is also a member of Korean Society of Pharmaceutical Medicine (KSPM).



T. Rajini Samuel

Shri Sathya Sai Medical College and Research institute, Sri Balaji Vidyapeeth Deemed to be University
Guduvancherry - Thiruporur main road, Ammapettai, Chengalpattu district, Tamilnadu, India

Application of cardiac vector hypotheses in novel ECG interpretation method

Electrocardiography (ECG) is one of the oldest diagnostic tool in medicine yet its interpretation remains an arduous task. A lot of advancements had come in the ECG machine, yet the basic physics principle of ECG is not clearly understood. The concept of Einthoven triangle and the cardiac vector describing the electrical activity of the heart was first described by Einthoven even before a century but he never published a complete detailed description of the same. After many decades, the complete Heart-Lead vector relationship and Einthoven's equilateral triangle hypotheses was published by the current author in previous research articles. The present study summarizes the clinical applications of cardiac vector theory to be applied at the bed side for ECG interpretation.

Voltage recorded in a particular lead is the result of dot product between the lead vector (measured in meter) and the cardiac vector measured in volt/meter. The heart is situated in the center of the electric field which it generates. The two upper limbs and the left lower limb are the extensions of its electrical field. Thus each cardiac wave (P, QRS,T) can be represented in the form of circles. All circles (see the diameter) should be formed in the left lower quadrant except QRS which can go up to -30 degree. When the angle between the 'QRS' and 'T' circles widen it usually denotes ischemia. Larger the size of a circle, higher will be the voltage. No circle should be formed during ST-segment since it is an iso-electric period. Formation of circle and its magnitude during the ST-segment indicate the amount of myocardial injury. Thus by seeing the size and location of the circles in the hex-axial reference system, interpretation can be done easily.

Many of the medical students and even most of the specialist doctors find difficult to understand the concept of electrocardiogram. ECG interpretation plays a vital role in emergency conditions. The early diagnosis can reduce the morbidity and mortality of the number one killer disease in the world. The quicker and proper interpretation of ECG report will result in saving millions of cardiac patients.

So, the combination of the 12-lead ECG with this resultant cardiac vector represented by circle provide the optimum approach to ECG interpretation.

Coronary artery disease remains a great threat to the humankind and also poses a major challenge to the scientific community in the 21st century. The concept of Einthoven triangle and cardiac vector hypotheses forms the most important part in the understanding and interpretation of ECG which when properly and quickly applied at the right time for the patient care results in saving millions of lives.

Keywords: Heart vector, Lead vector, Einthoven triangle, Novel ECG interpretation

Audience Take Away:

- Physics Principle of ECG using vector concepts
- Formulation of Cardiac Vector theory and its application in ECG Interpretation
- Novel ECG Interpretation
- Understanding and quicker Interpretation of ECG helps in saving the life of the cardiac patients

Biography:

Dr. T. Rajini Samuel did MBBS (2004 -2010) in Chengalpattu Government Medical College, Tamil Nadu, India. He worked in Venkateshwara Hospitals, Chennai to complete the ECG project. He had proposed cardiac vector hypothesis and Novel ECG interpretation method. He completed M.D Biochemistry in Sree Balaji Medical College and Hospitals, Chennai, in 2015, focused research on ABG interpretation and presently working as an Associate Professor in Shri Sathya Sai Medical College and Research Institute, Chennai. He had published 36 research articles, 3 books and one chapter. He received *Indian Achievers Award 2021 for Excellence in Innovation awarded by the Indian Achievers Forum*.

**N.Gokarneshan**

Professor and Head, Department of Fashion Design and Arts, Hindustan Institute of Technology and Science, Chennai, Tamil Nadu, India

Role of textile materials as cardiovascular implants

Due to a steadily growing number of patients and considerable diagnostic and therapeutic advances, vascular diseases are becoming more and more important in general and clinical practices. The design and fabrication of synthetic vascular prostheses have been challenging to the area of surgical research over the last four decades. As vascular grafts must have specific characteristics. Textile structures are usually the materials used for arterial replacement, however they do not always meet all the requirements. The most important aspects of an arterial grafts are porosity, compliance and bio-degradability. A graft should be micro porous to provide a stable anchorage for vascular cells and stimulate cell ingrowth. Most Textile grafts are constructed either of PET (Polyethylene terephthalate) commercial name Dacron or PTEF (Polytetrafluoroethylene) known as Teflon. The design requirements for large as well as small vascular grafts are highlighted herein. Different textile structure use for grafts, Latest development in textile graft to improve kinking properties, Tissue grafts and different product available in market to solve cardiovascular problem. It is concluded that the development of vascular grafts for replacing small diameter arteries may be reached by modifying currently available synthetic materials or thru break through procedures and discoveries in the area of tissue engineering.

Audience Take Away:

- Audience will get exposure on the developments in the field
- They could apply the materials to their research
- The new textile materials could offer a substitute to existing materials

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 noteworthy 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.



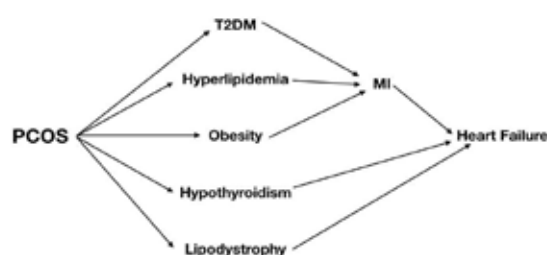
Abhijit Ray^{1*}, Thota Chandana²

¹Consultant, Internal Medicine, FITTO Clinic, Kolkata, West Bengal, India

²Clinical Research Associate, FITTO Clinic, Bengaluru, Karnataka, India

PCOS: A pre heart failure state

Polycystic Ovarian Syndrome (PCOS) or Stein-Leventhal Syndrome is the most frequent endocrine illness, with systemic metabolic symptoms and neuroendocrine-immunity disruption commonly affecting 5%–10% of reproductive-age women described by two of the following three characteristics: Oligoovulation or anovulation, clinical and/or biochemical evidence of hyperandrogenism, or polycystic ovaries when all other endocrinological and gynecological problems have been ruled out. Insulin resistance and low-grade inflammation are part of the pathogenesis of PCOS, and women with PCOS are more prone to develop metabolic syndrome. PCOS women are more likely to be overweight or obese, diabetic, or have high blood pressure, all of which are risk factors for heart disease and stroke. Women with PCOS show lower HDL levels, higher LDL/HDL ratios, and greater triglyceride levels than women with healthy ovaries. We link these lipid abnormalities to insulin resistance, which results in the onset of Cardiovascular Disease (CVD), such as Myocardial Infarction (MI). The relationship between PCOS and risk of cardiovascular risk (MI & CVA) has been well established. Here, we try to establish PCOS as a Pre Heart-Failure state (a condition which may progress to Heart Failure). Because of a lipid/glucose altered metabolism, hypertension, hypothyroidism, systemic inflammatory condition (assessable by markers such as VES, TNF-alpha, cytokines, and C-reactive protein/hsCRP levels), and vascular injuries, PCOS patients are prone to develop Heart Failure later on in life. A retrospective questionnaire was prepared for females diagnosed with Heart Failure. 39 out of 200 (19.5%) female patients recalled being diagnosed with PCOS in their reproductive years. At present, MI and chronic Hypertension are considered the 2 most important risk factors for Heart Failure. However, this research shows that PCOS is also a very important risk factor in developing Heart Failure later in life. Further research needs to be done to assess if adding any medications is useful in preventing Heart Failure in patients suffering from PCOS. Also, the degree of PCOS could not be correlated to the severity of Heart Failure through this questionnaire; a trial needs to be conducted separately for that.



Audience Take Away:

- This presentation gives the audience a new perspective on how PCOS can affect the patient in the long term, specifically the chances of PCOS patients developing Heart Failure later on in life. Healthcare practitioners and other faculty can use this study in giving better patient care. This presentation can also help in creating awareness of what further research needs to be done to improve outcomes of PCOS patients. Apart from this, this presentation introduces the concept of Pre Heart Failure - a state which if not managed properly will lead to Heart Failure in future.



Biography:

Dr. Abhijit Ray works as a Consultant of Internal Medicine in FITTO Clinic. Dr. Ray has published a number of papers in national and international journals. He also has 2 patents pending for approval. He was awarded the Best Diagnostician of the Year in 2019 for his brilliant clinical acumen. On the other hand, his knack for clinical research has been recognized by the national news agencies multiple times.

Miss Thota Chandana is a student of Doctor of Pharmacy in CMR College of Pharmacy, affiliated with JNTUH. She is working with the FITTO clinic as a clinical research associate. She has written various articles, blogs, and other content on healthcare and lifestyle topics. Thota Chandana is a co-author in a published article on hypertension in post-COVID patients in international journal of creative research thoughts - IJCRT.

**Kesha M Desai^{1*}, Folitatha Roy¹, Parasuraman P², Md Azamthulla¹**

Department of Pharmacology, Faculty of Pharmacy, M.S Ramaiah University of Applied Sciences, Bangalore, India

Department of Pharmaceutical chemistry, Faculty of Pharmacy, M.S Ramaiah University of Applied Sciences, Bangalore-, India

Drugrepositioning for myocardial infarction: Computational and pharmacological approach

Myocardial Infarction (MI) related to cardiovascular diseases has been a major cause of death worldwide making it a challenge for the scientists to focus towards the protection of heart. The concept of Drug Repurposing showed Alpha-2 and Beta-1 adrenergic receptors having potent binding affinity with Tretinoin. Thus the aim of this study is to elucidate cardio-protective effect of Tretinoin in rats.

In-silico Molecular Docking and Dynamics studies were carried to analyse the binding affinity and stable interaction of drug-receptor complex.

The rats were randomized in 5 groups. MI was induced in rats using 85mg/kg Isoproterenol (ISO) twice at an interval of 24 hrs through subcutaneous route to all the groups except normal control. The grouping of animals as follows; Normal group, positive control group (ISO), Standard group (ISO + Ascorbic acid (250 mg/kg b.w.), Low dose group (ISO + Tretinoin 5 mg/kg b.w.) & high dose group (ISO + Tretinoin 10 mg/kg b.w.). After 21 days of the study period, ECG, cardiac biomarkers and Histopathological study of heart was assessed.

Molecular Docking and Dynamics Studies have shown better drug binding affinity with Alpha-2 (-9.1) and Beta-1 (-8.7) adrenergic receptors. Myocardial Infarction was developed in rats by administering Isoproterenol. Pre-treatment with Tretinoin (5 & 10 mg/kg p.o.) ameliorates the myocardial lesions and decrease the levels of biomarker such as CKMB, LDH, SGPT, ALP to enhance the functioning of heart. The alteration in ECG recordings and histopathology of heart were also studied. The histopathological studies of heart treated with Tretinoin also showed recovery of destructive myocardium tissues and develops the normal architecture of heart. This provides an additional support to prove repurposing of the cardiac functions. The present study focuses on the effective cardioprotective approach of Tretinoin towards Alpha-2 and Beta-1 adrenergic receptors binding having stable interaction along with significant decrease in cardiac biomarker levels leading to improve cardiac functions.

Audience Take Away:

- This study aimed to explore the cardioprotective activity of the repurposed drug Tretinoin
- Tretinoin as a cardioprotective drug showed effective treatment in reduction in the symptoms
- of cardiovascular diseases
- Tretinoin is a medication used to treat acne and sun-damaged skin, this same drug we can use for myocardial infarction also through its repurposing mechanism

Biography:

Dr. Kesha M. Desai is an assistant professor in M.S. Ramaiah University of Applied Sciences Bangalore. She completed her B. Pharm, M. Pharm and PhD from Gujarat. She worked in Rofel College of Pharmacy Gujarat and also in Oxford College of Pharmacy Bangalore. She has clinical and preclinical research and education background in the field of Pharmacy. She received awarded as a "Young Researcher in Pharmacology" by Venus International Foundation 2018. She has more than 9 years of teaching experience. She developed a new formulation (Lozenges) for the treatment of Aphthous Stomatitis. Her special interest lies in animal studies and clinical trials. She is guiding M. Pharm students for their research work. She has also presented papers in international scientific conferences. She has published many research and review articles in reputed journals. She has participated actively at various conferences and workshops. She is equally passionate and is actively involved in academics training undergraduates and post graduates since 2012. She is equally enthusiastic in dance and she has graduation degree in classical dance.

**Namitha Arvind Baliga**

A J Institute of Medical Science and Research Centre, Mangalore, Karnataka, India

Use of ultrasound in non cardiac diagnosis

Use of Ultrasound in non cardiac diagnosis like gynaecological scanning, abdominal scanning, renal ultrasound, pelvic ultrasound, chest ultrasound and soft tissue imaging of the neck, vascular ultrasound.

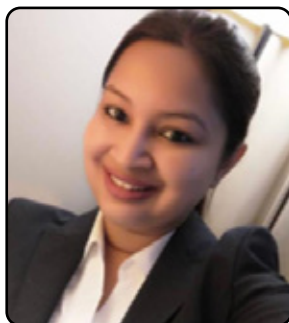
A brief description about how an Echocardiographer can identify incidental non cardiac diseases.

Audience Take Away:

- As we cardiac sonographers have a good knowledge on cardiac disorders it would also be very beneficial and a add on to have a great idea about non cardiac diagnosis by using ultrasound. As we incidentally find some non cardiac diseases while performing cardiac sonography, it would be really great to have good knowledge on extracardiac diseases as well.

Biography:

Mrs. Namitha Arvind Baliga currently working as an Assistant Professor/Co-ordinator for Cardiac Care Technology course(Allied Health Stream) at A J Institute of Medical Sciences and Research Centre; Mangalore; India. He have participated in the 2nd Edition Cardiology World Conference with a virtual Video Presentation held at France in September 2021.



Dhilshan Thahir¹, S.M.U.W.C.U.Senaviratne², Chinthaka Samarajeewa³, Amit Gupta⁴, Tripti Sharma^{4*}

¹Physician, Green Cross Medical Centre/ MBBS, MD, DTCD(Col), MCSEP, MCGP(SL), DDM(Diabetes), FIDM(Diab.UK), PGCN(RCP.UK), PGPCH(UK), Colombo, Western Province, Sri Lanka

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³Physician, Teaching Hospital – Badulla/MBBS, Uva Province, Sri Lanka

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⁴Medical advisor, Scientific services/BDS, PGD Clinical Research, Assistant Manager, USV Private Limited, Mumbai, India

Clinical effectiveness of telmisartan as monotherapy for the management of Sri Lankan patients with hypertension

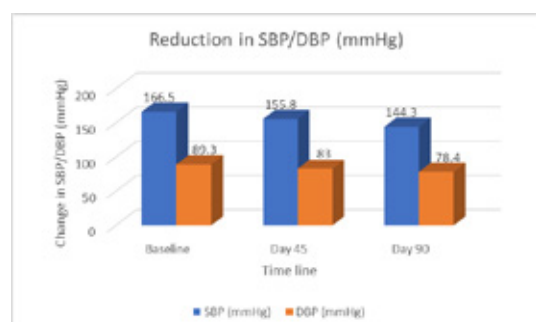
Background: There is an increase in number of hypertension patient in the Republic of Sri Lanka. Telmisartan is an angiotensin II receptor blocker & preferred as treatment of choice to achieve target blood pressure.

Objective: The present study was conducted to evaluate the clinical effectiveness of telmisartan as monotherapy for the management of hypertension in Sri Lanka.

Methods: This was a multicentric survey included patients with aged >18 years receiving telmisartan as monotherapy for the management of hypertension. Study was conducted between Nov 2020 and Jan 2021. Data was collected during each visit at baseline, day 45, and day 90, from selected clinics/ hospitals.

Results: A total of 264 patients with mean age of 59.3 years were part of this study where only 92 patients received telmisartan as monotherapy. Majority of patients were men (61.6%). The most prescribed dosage of telmisartan was 40 mg (70.6%) followed by 80 mg (17.5%) and 20 mg (11.9). Diabetes was observed in 60 (33.9%) patients with hypertension. A significant reduction in the SBP/DBP was observed during the course of telmisartan monotherapy (Figure 1). The mean (95% confidence interval) change in SBP and DBP from baseline to day 45 and day 90 was 10.7 (8.9-12.5); $P<0.0001$ and 6.2 (4.8-7.7); $P<0.0001$, 24.7 (21.9-27.4); $P<0.0001$ and 10.6 (9.2-12.1); $P<0.0001$, and 14.7 (12.7-16.8); $P<0.0001$ and 4.5 (3.2-5.9); $P<0.0001$, respectively.

Figure 1: Change in SBP/ DBP (mmHg) during course of telmisartan monotherapy



Conclusion: A significant improvement in blood pressure was associated with telmisartan monotherapy and found to be effective in Sri Lankan patients with hypertension.

Audience Take Away:

- Telmisartan monotherapy is effective in maintaining clinically relevant reductions of both systolic & diastolic blood pressure
- Telmisartan may be a good candidate for blood pressure control with comorbidities like diabetes during routine clinical practice
- This analysis supports the favorable efficacy and safety profile of telmisartan as monotherapy
- Irrespective of the patient's age, duration, and in mild to moderate hypertension, the study resulted efficacious in the reduction of hypertension

Biography:

Dr Tripti Sharma has completed her advanced PG Diploma in Clinical research, Medical and scientific content writing from Cliniminds India. She is an avid medical communicator with versatile experience in the field of medical writing and communication. Also, she has several publications and poster presentations in reputed journals & conferences. Dr. Tripti Sharma is currently associated with USV Private limited as a team member in the Scientific services team.

**Ygal Plakht^{1*}, Harel Gilutz², Arthur Shiyovich³**

¹Department of Nursing, Faculty of Health Sciences, Ben-Gurion University of the Negev and Department of Emergency Medicine, Soroka University Medical Center, Beer-Sheva, Israel

²Goldman Medical School, Faculty of Health Sciences, Ben-Gurion University of the Negev, Beer-Sheva, Israel

³Department of Cardiology, Rabin Medical Center, Petah Tikva, Israel and Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel

The impact of anemia on long-term mortality among post-acute myocardial infarction patients according to different levels of chronic kidney disease

Background: Anemia has been shown to be adversely associated with outcomes following Acute Myocardial Infarction (AMI). Anemia is often related to Chronic Kidney Disease (CKD) which is prevalent among AMI patients.

Aim: To evaluate the prognostic effect of anemia by different levels of CKD among patients following AMI.

Methods: AMI patients hospitalized in a tertiary Medical Center through 2002-2017 were studied. Exclusion criteria: patients who died in-hospital, lack of laboratory test results within 24 hours of admission. Anemia was defined as hemoglobin level <12 mg/dL or <13 mg/dL upon admission in women and in men respectively. CKD was classified according to the KDIGO (2012) and presented in six categories, based on the eGFR upon admission. The primary outcome was all-cause mortality up-to ten years after hospital discharge. Statistical analysis included survival approach.

Results: The study included an overall of 11,395 patients, age 68±13.9 years, 69.1% men. The rate of anemia increased with the degree of CKD: from 16.4% in G1 to 71.5% in G5 groups (p-for-trend <0.001). Patients with higher CKD level were generally older with higher rate of most comorbidities and some cardiovascular risk factors (hypertension, diabetes mellitus) and lower rate of other (smoking, obesity dyslipidemia), of STEMI and of interventional revascularization therapies. Throughout a median follow-up of 3476 days (~9.5 years) a total of 5446 patients died (47.8%), significantly higher among patients with anemia vs. without anemia (75.3% vs. 36.1%, p<0.001) and with increasing level of CKD (25.5% for G1 vs. 90.9% for G5, p-for-trend <0.001). Mortality rates were higher among patients with anemia for every level of CKD. A multivariate interactive model adjusted to potential confounders showed significantly higher relative risk for mortality for anemia (adjHR=1.911, 95%CI: 1.670-2.188, p<0.001) and for greater degree of CKD (adjHR=1.261, 95%CI: 1.220-1.304 for one stage increase, p-for-trend<0.001). However, mostly significant and prominent burden of anemia was observed in patients with lower degrees of CKD (p-for interaction <0.001).

Conclusions: Anemia among AMI survivors with CKD is adversely associated with survival, particularly among patients with relatively mild CKD.

Audience Take Away:

- Baseline characteristics of AMI survivors with anemia significantly differ according to CKD levels
- Anemia and CKD are independently associated with significantly increased risk for long term mortality among AMI survivors
- The most significant and prominent impact of anemia over mortality is among patients with mild rather than severe CKD

Biography:

Dr. Ygal Plakht (YP) was born in USSR in 1971 and since 1990 lives in Israel, Beer Sheva. In 1998 YP graduated as a Bachelor of Nursing (BN) in Ben-Gurion University of the Negev, Beer-Sheva, Israel and in 2009 received PhD in Department of Epidemiology, the Faculty of Health Sciences Ben-Gurion University, Beer-Sheva, Israel. Today YP incorporates research (Senior lecturer), management (Director of Recanati School of Community Health Professions, Ben-Gurion University of the Negev) and work in the clinical field (Nurse in the Emergency Department, Soroka University Medical Center). The primary research interest included an epidemiology of acute and chronic disorders with an emphasis on investigation of prognosis and utilization of healthcare services following acute myocardial infarction. During the work in this field YP gained a reach experience in management and analysis of big patients' administrative and clinical data obtained from different computerized information systems. Author and co-author of about 70 scientific publications in collaboration with physicians and academic staff.

**Amirali Fallahian^{1*}, Sajjad Rezvan²**¹General Physician, Iran²MD, Department of Radiology, Radiology Resident, Iran**Evaluating the independent impact of renal function decline on coronary artery calcification in patients undergone cardiac CT scan**

Cardiovascular disease is the leading cause of death with most common etiology being coronary artery disease. Calcification in the intima and media layer of the vessel is of the first signs of coronary artery involvement.

On the other hand, end stage renal disease have been shown to result in vascular classification. Our study aimed to, firstly, investigate the association between renal function -in particular mild dysfunction- and, secondly, to determine the role of this variable by eliminating the effect of confounding factors.

261 individuals -either asymptomatic or with atypical symptoms- having cardiovascular risk factors were studied by performing a CT scan without IV contrast. The images were interpreted by an experienced radiologist. The CAC score (Coronary Artery Calcification) was calculated with Agatston method; classified in 5 categories, ranging from none to severe calcification.

Medical history was gathered by questionnaire, a trained nurse recorded the demographic data and creatinine level for GFR estimation was collected from patients' medical records. Multivariate and univariate analysis was performed. The results showed low eGFR as an independent risk factor for increased CAC among others.

Audience Take Away:

- Emphasizing on tight control of even mild kidney diseases to reduce future cardiovascular events
- Coronary calcification on CT scan images can be seen as an alarm sign for kidney disease
- We can use CAC score to determine the prognosis of cardiovascular events in patients with kidney involvement
- This study can be used as a basis for further investigations in CAC and kidney diseases

Biography:

Dr. Fallahian studied medical at qum university, Iran and graduated as MD in 2018, He is preparing for USMLE, He has started research since 2019, He has also certified in cosmetic medicine.

**Alireza Malekrah^{1*}, Nader Asgary², Alireza Fattahian³, Bahamin Amirabadi⁴**

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² Department of cardiology -Kermanshah University of medical science; department of cardiology, Kermanshah, Iran

³Alireza fattahian , department of cardiology: cardiovascular research center of Mazandaran , University of medical science; department of cardiology, Sari, Mazandaran, Iran

⁴Bahamin amirabadi, department of cardiology: cardiovascular research center of Mazandaran, University of medical science- Sari, Mazandaran, Iran

The importance of sustained junctional tachycardia following cessation of radiofrequency current delivery in slow pathway ablation

Background: Apart from junctional rhythms during slow pathway ablation, there is limited knowledge on the junctional tachycardia persisting following the ablation cessation. So, this study aimed to determine the characteristics and significance of this rare arrhythmia.

Methods and results: This study was done on 487 patients with AVNRT underwent the Radiofrequency (RF) ablation. The RF delivery-induced Supraventricular Tachycardia, persisting for a few minutes following the termination of ablation (post-ablation SVT) was investigated in this research. The atrial overdrive pacing was applied to the post-ablation SVT, in order to distinguish AVNRT from Junctional Tachycardia (JT). A total of 2337 RF-current deliveries were applied, and post-ablation SVT was observed in 81 of them. According to the electrophysiological studies, five of them (in five separate cases) were definitely diagnosed as JT. The overall incidence of post-ablation JT was about 1% of all patients. In these cases, RF energy was applied to the posteroseptal region and roof of the proximal coronary sinus. As well the mean cycle length of JTs was equal to 446 ± 67 ms. Following post- ablation JT termination, four cases met the endpoints of successful ablation, demonstrating a positive predictive value of 80%. Atrioventricular (AV) block occurred in none of the cases. Additionally, reappearance of JT was not observed during procedure or during the mean follow-up period of 19.8 ± 8.4 months.

Conclusions: Post-ablation JT is probably a transient Ischemia-induced arrhythmia requiring no further ablation. Thus, it is recommended to differentiate between the AVNRT and JT in post-ablation arrhythmias to avoid unnecessary RF application.

Audience Take Away:

- This is the first study primarily focusing on Junctional Tachycardia persisting after termination of slow pathway ablation. This survey provides valuable data and recommendations on what to do when an electrophysiologist encounters this arrhythmia
- You will find the answer to these questions
- do you have to continue ablation when post-ablation JT occurs
- Is post-ablation JT a pre-existent arrhythmia and does it need to be treated
- Is it a predictor of AV block and major complications

Biography:

Dr Alireza Malekrah is a cardiac electrophysiologist at Mazandaran Heart Center Hospital. He received his Medical Degree from Tehran's Shahid Beheshti University of Medical Science and then completed cardiology and electrophysiology fellowship training at Mazandaran and Tehran University of Medical Science. respectively. He has written 6 articles on cardiovascular disease and also two books about "signal average ECG" and "medical anthropology".



Paula da Cruz Peniche

Universidade Federal de Minas Gerais, Brazil

Assessment of cardiorespiratory fitness of individuals after stroke

Individuals after stroke have low levels of Cardiorespiratory Fitness (CRF) (maximum oxygen consumption (VO_{2max})). The CRF informs about the capacity of the cardiovascular and respiratory systems to supply blood rich in oxygen and about the capacity of the muscular system to use it during sustained physical activity. In addition, it has been considered as a clinical vital sign that should be routinely evaluated. Low levels of CRF of individuals after stroke are associated with limitations to perform activities of daily living and increased risk of death. Thus, it is recommended that these individuals should perform aerobic exercise to increase the level of CRF. For this, the CRF of these individuals should be carefully and systematically evaluated. The Cardiopulmonary Exercise Test (CPET) is considered the gold standard for assessing the CRF. However, this test has limited clinical applicability. Therefore, other strategies for obtaining the VO_{2max} that have better clinical applicability than the CPET should be investigated, for example, equations to predict the VO_{2max} . However, this equation has not been developed for individuals after stroke and the equations developed to predict the VO_{2max} of able-bodied and sedentary individuals are also not valid to predict the VO_{2max} of these individuals. In conclusion, the assessment of CRF of individuals after stroke is complex and multidimensional (vital data, history, field tests (6-Minute Walk Test, Incremental Shuttle Walking Test), Duke Activity Status Index (DASI), and Human Activity Profile (HAP)) and must consider the potential barriers that may prevent the patient from participating in the training program.

Biography:

Physiotherapist and Master in Rehabilitation Sciences from the Universidade Federal de Minas Gerais (UFMG, Brazil). I was a scientific initiation student (scholarship holder) under the guidance of Professor Christina DCM Faria in Neurofunctional Physiotherapy. I was a monitor of the disciplines: Kinesiology applied to Physiotherapy, Resources in Physiotherapy I, Neuroanatomy. I participated in the project Construction of Concept Maps in Teaching Subjects of the Department of Morphology (2015). I have articles published in journals with a high impact factor on neurological rehabilitation. I am currently a doctoral student in the Postgraduate Rehabilitation Sciences program at UFMG, under the guidance of Professor Christina DCM Faria. I am member of the research group on Adult Neurological Rehabilitation at UFMG (NEUROGroup).



M. Rudenko^{1*}, V. Zernov¹, O. Voronova¹, E. Maevsky²

¹Russian New University, Moscow, Russia

²Laboratory of Biological Systems Energetics, Institute of Theoretical and Experimental Biophysics, Russian Academy of Sciences. Pushchino, Institutskaya

Cardiometry: A new fundamental scientific field in cardiology

Listeners will learn about a fundamental discovery of a new blood flow mode with low friction due to structuring the flow in each cardiac cycle in the form of alternating rings of blood cells and plasma, which is accurately described mathematically by the authors. This radically changed the paradigm of knowledge about the cardiovascular system. New opportunities for highly efficient non-invasive cardiac diagnostics appeared. It became possible to measure the blood volume and heart muscle metabolism and qualitatively assess the relationship between heart and central nervous system only with the help of an electrocardiogram in each cardiac cycle.

Discovery allowed creating a new theory of cardiac cycle phase analysis and, for the first time after V. Einthoven, introducing a new symbol on the ECG point L, that is the beginning of rapid ejection phase. That is just the phase structure of the cardiac cycle that creates and supports hemodynamics.

The results of the fundamental research allowed the authors to create a new field of science, cardiometry, science of accurate measurements in cardiology. It is based on revealed laws and created axiomatics for proving the studied phenomena compliance with the truth and broad practical use of serial electrocardiographs based on information technologies. This allowed to attribute cardiometry to the natural science field for the first time.

The report will acquaint listeners with the real commercially manufactured unique devices non-invasive diagnostics and therapy, in which the cardiometry theory is implemented.

Practicing cardiologists will learn about the cardiometry opportunities to significantly improve the quality of their work. It reveals the possibility of new topics for doing research.

Biography:

Graduated from the Taganrog Radio Engineering Institute in 1979. After graduation engaged in biophysics. Defended the thesis. Established several major private educational institutions. Made 9 fundamental scientific discoveries in the field of cardiology. Founded a new fundamental field of science, cardiometry. Developed the theory of cardiac cycle phase analysis. 1980-1999 led the development of a unique set of diagnostic equipment for assessing the human operator health state in the conditions of space flight on reusable spacecraft "Buran". Since 2000 supervised the development of diagnostic and therapeutic equipment of wide application on the basis of theory of cardiometry. Now conducts research on the following topics: hemodynamics, neurocardiometry, heart muscle metabolism, adaptation reactions of the organism, heart expectancy.

**Sokolovic Sekib**

Clinic for Heart, Vascular and Rheumatic diseases, Clinical Center University of Sarajevo, Sarajevo, Bosnia and Herzegovina

Pericarditis is the most frequent post-covid-19 complication and colchicine is a drug of choice

Introduction: The post-COVID-19 syndrome is a subacute chronic condition affecting certain recovered patients from the acute viral infection. The most post-covid symptoms resolve after 3 months, but some patients experience continuation of fatigue, shortness of breath, palpitations, cough and muscle chest pain. That patients fall into category of long-covid syndrome.

Method: The prospective clinical randomized study of long-covid patients were included in the study. Three groups of recovered patients were formed with mild (Group I), moderate (Group II) and severe (Group III) clinical manifestation during acute covid-19 infection. Diagnostic procedures included the electrocardiogram, transthoracic echocardiography, magnetic resonance imaging (MRI) in a selected patients with risk factors and comorbidities analyzed. Total of 192 post-covid-19 patients were included in this study.

Results: The average duration of post-covid-19 symptoms was 16 weeks. Total of 106 females (55,2 %) and 86 (44,8%) males were observed with average age of 57,3 years. The most frequent manifestation was mild to moderate subacute pericarditis in 21,8% patients in average, but with a significant difference in all three groups. The most often pericarditis was seen in a group III (77,4%), followed by group II (18,6,0%) and insignificant in a group I (4,0%). All patients received colchicine therapy that proved to be effective in all. MRI was performed in 6 patients and no myocarditis was found.

Conclusion: Our results indicate that Pericarditis is the most underlying condition in a long covid-19 period and colchicine could play a role on the therapy and prevention of recurrent pericarditis in the management of complications associated with post-COVID-19 syndrome.

Biography:

Prof. Dr. Sekib Sokolovic studied Medicine at the Sarajevo University, Bosnia and Herzegovina and graduated in 1983. He received his PhD degree in 2004 at the same institution. He obtained the position of an Professor in Internal Medicine, Cardiology, Vascular Disease and Rheumatology at the same institution. He gained subspecialty training in Rheumatology at University of California Irvine, L.A. and later subspecialty in Cardiology at Medical Faculty of Sarajevo. He has published research articles in SCI(E) journals., reviewer of many scientific journals worldwide and invited speaker at domestic and international medical scientific conferences and symposia.

**Francesca MT Leone*, Ghazi Elshafie, Mahmoud Loubani**

Castle Hill Hospital, Cottingham, East Yorkshire, UK

Can pre-operative patient factors predict permanent pacemaker implantation after Coronary Artery Bypass Grafts (CABG)?

Approximately 1% of patients who undergo Coronary Artery Bypass Graft Surgery (CABG) may require Permanent Pacemaker Implantation (PPMI). Previous studies have investigated risk factors for PPMI including age, sex and the presence of renal disease. However, we wished to focus on the potential influence of pre-operative cardiac status.

We undertook a retrospective review of all patients who underwent isolated CABG between 1999 and 2020 in a tertiary referral cardiothoracic surgical department of Castle Hill Hospital, Hull, United Kingdom. The data was taken from a large hospital registry. We excluded patients with preoperative complete heart block or pacemaker in situ and identified those who had PPMI in hospital postoperatively. We analysed the data using IBM SPSS Statistics Version 27.

Of the total 8073 patients who underwent isolated CABG surgery during this period, 7881 did not require PPMI after surgery. 115 were excluded due to having a pacemaker in situ before the operation and 10 due to pre-operative heart block. 67 patients (0.85%) required PPMI after surgery. Predictors for PPMI post CABG were preoperative arrhythmia ($p<0.001$), number of previous myocardial infarction (MI) ($p<0.001$), unstable angina within 30 days ($p<0.001$) and the extent of coronary artery disease ($p=0.025$).

Our findings demonstrate that the risk of PPMI can be predicted by several indicators of cardiac disease pre-operatively. We recommend that this risk should be addressed in the preoperative assessment to tailor the consenting process to the patient. We feel this has a potential role in developing a more patient centered approach and could lead to a better understanding of post-surgical risk for both clinician and patient.

Audience Take Away:

- Pre-operative patient factors influence their risk of requiring a permanent pacemaker after coronary artery bypass grafts
- This research provokes further work to develop a risk prediction model to tailor quoted risks to individual patients
- This proposes a patient centered approach to consent and risk management; studies such as these could improve shared decision-making in the pre-operative period

Biography:

Dr. Francesca MT Leone is a Clinical Research Fellow in the Department of Cardiothoracic Surgery, Castle Hill Hospital United Kingdom. She completed her MBChB at the University of Leicester in 2019 where she also completed an intercalated bachelor's degree in Medical Research with first class honors.



Ronak Chhaya*, Ajay Bhandari
University of South Florida, United States

Into the wall: Left ventricular non compaction

Introduction: Left Ventricular Noncompaction (LVNC) is a rare, congenital disorder affecting the lining of myocardial tissue. This distinct phenotype includes blood-filled trabeculations and deep recesses in the uncompressed endocardial wall with a thin, compact mesocardium. Clinical presentation ranges from asymptomatic to heart failure, lethal arrhythmias and thromboembolism. A validated and accepted criteria for radiographic diagnosis describes the ratio of noncompacted to compacted myocardium $>2:1$. LVNC can be sporadic or familial, though specific environmental triggers have not clearly been established.

Case Presentation: A 22-year-old Hispanic male with history of end-stage renal disease secondary to glomerulonephritis, severe COVID-19 pneumonia and recent diffuse alveolar hemorrhage currently on prolonged glucocorticoid taper presented with acute heart failure. Echocardiogram demonstrated cardiomyopathy with Left Ventricular Ejection Fraction (LVEF) 35-40%, mild LV hypertrophy and moderate global hypokinesis. Lack of ischemic risk factors led to evaluation with cardiac MRI. Findings of mid-to-apical LV hypertrabeculation and noncompacted to compacted myocardial ratio of 3 were consistent with LV noncompaction. Arrhythmias or thromboembolic events were not observed. Guideline-directed medical therapy was initiated along with referral for genetic testing.

Discussion: Left ventricular noncompaction is an uncommon etiology of cardiomyopathy. Recognition is valuable due to known complications, including sudden cardiac death, arrhythmia and stroke. The pathogenesis underlying this young adult's phenotype is not clearly identified. His symptoms developed in the setting of COVID-19 pneumonia, diffuse alveolar hemorrhage with significant anemia and prolonged steroid exposure. These correlates have not previously been described in association with LV noncompaction and their significance is unknown.

Biography:

Dr. Ronak Chhaya received his BS from the University of Michigan-Ann Arbor in 2012. He received his MA from Loyola University Chicago in 2013. He then spent several years at Michigan State University, receiving his MD in 2018 and completing Internal Medicine residency in 2021. He currently lives in Tampa, FL where he works as an academic hospitalist with the University of South Florida. He has long been engaged in research, notably living in Uganda for three months during medical school to lead HIV research. He has been published in peer-reviewed journals and presented at national conferences across the USA.

**Mailing Flores Chang^{1*}, Nehemias Guevara¹, Julian Paniagua¹, Lynn Zaremski²**¹ Department of Medicine, Internal Medicine, St. Barnabas Hospital Health System, The Bronx, NY² Department of Medicine, Cardiology, St. Barnabas Hospital Health System, The Bronx, NY**Case report: Non-bacterial thrombotic endocarditis in an immunocompromised patient**

We present a 62-year-old male with a past medical History of Hypertension (HTN), coronary artery disease, human immunodeficiency virus, untreated lung adenocarcinoma, history of deep venous thrombosis, renal infarction, right popliteal artery thrombosis (treated with embolectomy on anticoagulation). Presented to the Emergency Department (ED) with sudden onset of right vision blurriness associated with a severe bilateral frontotemporal headache and left-sided pleuritic chest pain associated with shortness of breath. Found to be with multiple cardioembolic cerebral stroke, intraparenchymal hemorrhage and echocardiogram showing thickened mitral valve leaflets and a mass adherent to the posterior mitral leaflet which was new compared to previous imaging; infectious etiology was ruled out and given history of multiple thromboembolic events, patient was diagnosed with non-bacterial thrombotic endocarditis.

Audience Take Away:

- Definition of non-bacterial thrombotic endocarditis
- Awareness of clinical presentation of noninfectious pathologies in immunocompromised patients
- Management of non-bacterial thrombotic endocarditis

Biography:

Dr. Mailing Flores Chang studied at University of El Salvador, in El Salvador, graduated as an MD in 2017. She then decided to continue her studies and do a residency program in Internal Medicine at St Barnabas Hospital in The Bronx, currently working as a PGY-3 and chief of residents. She is interested in cardiology where she will be applying in this upcoming season. She has done research in the field since medicine school where she did a study about AV block in chagas disease patients.



Andrii Labchuk MD^{1*}, Elily Temple-Woods DO², Marianna Krive DO³

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Case of tachycardia induced cardiomyopathy during pregnancy: Clinical presentation and management

Introduction: Cardiomyopathy is a known complication of tachyarrhythmias and carries a relatively favourable prognosis when rate control or reversal of the underlying cause is achieved. However, in pregnancy, it may be difficult to distinguish other more sinister causes of cardiomyopathy from tachyarrhythmia-induced cardiomyopathy. Furthermore, tachycardia is often overlooked in pregnant people and may be taken as a physiological response to volume changes in late pregnancy. Treatment options are limited based on teratogenicity and fetal cardiotoxicity depending on gestational age.

Case 1. A 28 year old G2P0010 with remote history of spontaneous abortion at approx 5 weeks of pregnancy presented for routine prenatal care at 33 weeks EGA. The pregnancy was complicated by COVID-19 infection at 16 weeks EGA, treated with casirivimab-imdevimab, and benign thrombocytopenia. On presentation to the outpatient office, she was asymptomatic but heart rate was noted at approximately 150 BPM and irregular. ECG was performed and was consistent with atrial multifocal tachycardia. Fetal heart rate was 140 BPM. Patient was started on labetalol 50 mg daily and was referred to cardiology for urgent consultation. Echocardiogram was performed and showed dilated left ventricular cavity with moderately reduced ejection fraction of 40%. No previous echocardiogram was available for comparison. Dose of labetalol was increased to 50 mg twice daily. Though she frequently spontaneously converted to sinus rhythm, especially with vagal manoeuvres, she was unable to maintain sinus rhythm. She was admitted to the maternal-fetal medicine service with family medicine, cardiology, and electrophysiology in consultation. While on continuous electronic fetal monitoring, she was loaded with digoxin but atrial tachycardia persisted despite therapeutic levels of digoxin. She was transitioned from labetalol and digoxin to flecainide and metoprolol after which sinus rhythm was maintained. Repeat echocardiogram at 36 weeks gestation revealed improvement in EF to 50% and ECG revealed normal sinus rhythm. Labor was induced at 39 weeks' gestation with continued flecainide and metoprolol intrapartum; she delivered a healthy male infant via normal spontaneous vaginal delivery. Flecainide was discontinued and metoprolol was continued postpartum. Three days postpartum, the patient presented to the ED with biliary colic and was found to have reverted to atrial tachycardia. She was switched from metoprolol to flecainide and converted to sinus rhythm prior to discharge. She presented for routine postpartum follow-up to the family medicine office on postpartum day 15 and EKG again revealed atrial tachycardia. She was restarted on metoprolol and thereafter maintained sinus rhythm. Repeat echocardiogram and electrophysiological evaluation is planned for six weeks postpartum.

Audience Take Away:

- Tachycardia during pregnancy is common due to volume changes and distinguishing between physiological and pathological causes can be a challenge for clinicians
- In particular, tachyarrhythmias may be easily overlooked. Persistent tachycardia during pregnancy requires multispecialty evaluation and tight coordination between patient and physician
- When tachycardia or arrhythmia is diagnosed during pregnancy, echocardiogram may be necessary to evaluate left ventricular systolic function and rule out structural abnormalities. Medication choice is limited due to pregnancy, but several agents are known to be safe and effective in pregnancy throughout gestation
- We will discuss the clinical decision-making process in evaluation and management of tachycardia and arrhythmia in pregnancy
- The role of continuity, consultation, and collaboration in obstetric care when transitioning between low and high risk providers, especially late in gestation

Biography:

Dr. Andrii Labchuk finished Ivano-Frankivsk National Medical University in Ukraine in 2016. Prior to becoming physician Dr. Labchuk received degree with Honor in Midwifery. After moving to United States and taking all necessary exam, Dr. Labchuk entered Internal Medicine Residency Program in Advocate Lutheran General Hospital. After finishing Internal Medicine Residency, Dr. Labchuk is planning to continue his training in cardiology, focusing on cardiovascular health of pregnant females, pregnancy planning in females with cardiovascular diseases.

**Ronak Chhaya, MD^{1*}; Juan Enciso, MD²; Mohammad Mehio²**¹University of South Florida Main Hospitalist Group, Tampa, FL, USA²University of South Florida Internal Medicine Residency Program, Tampa, FL, USA**Myocardial bridging: Crossing over an uncommon cause of angina**

Background/Introduction: Myocardial bridging refers to an anatomic irregularity involving the epicardial coronary arteries and their entrapment by an overlying myocardial band or by tunneling through the myocardium. A process thought to originate during embryogenesis, it is present commonly and typically has no clinical implication. Severe bridging, however, can result in a wide array of clinical presentations including myocardial ischemia, myocardial infarction, and sudden cardiac death. Preliminary evaluation and diagnosis typically require left heart catheterization or Coronary CT Angiography (CCTA). Treatment with medical therapy, revascularization or surgical resection should be considered in symptomatic patients.

Case Presentation: We report the case of a 48-year-old male with a history of essential hypertension, frequent migraines and chronic pain presenting with acute-onset substernal chest pain and developed shortness of breath. He was admitted for hypertensive emergency and briefly required intravenous anti-hypertensive support. Initial cardiac biomarkers were within normal range and BNP was mildly elevated. His presenting electrocardiogram demonstrated a normal sinus rhythm and left ventricular hypertrophy without evidence of ischemia. Adequate blood pressure control was achieved on a target oral medication strategy but the patient continued to have symptomatic angina. Transthoracic echocardiogram revealed preserved left ventricular function, normal wall motion and changes suggestive of chronic hypertension. Left heart catheterization was significant for non-obstructive coronary artery disease and the presence of mid-vessel myocardial bridging of the Left Anterior Descending artery. Surgical evaluation was subsequently pursued with recommendations for a Coronary Computed Tomography Angiography (CCTA) to determine if myomectomy was required to unroof the myocardial bridge. At the time of evaluation, the patient opted against surgical interventions and decided on medical management. He was discharged with aspirin, calcium-channel blocker and anti-anginal therapy.

Conclusion: This case highlights a less common etiology for acute chest pain. Due to its relatively common prevalence and potential for life-threatening sequelae, it should be considered in the differential diagnosis when presentation is less consistent with obstructive coronary artery disease. CCTA is an appropriate diagnostic modality that can lead to early identification of this anomaly. If suspected, physiologic evaluation during left heart catheterization can also identify a myocardial bridge. Treatment is indicated in symptomatic patients and referral to cardiothoracic surgery is appropriate.

Audience Take Away:

- Discuss myocardial bridging background
- Incorporate this into a differential diagnosis for acute chest pain evaluation
- Recognize when observation vs intervention is appropriate
- Understand diagnostic workup
- Discuss medical and surgical interventions

Biography:

Dr. Ronak Chhaya received his BS from the University of Michigan-Ann Arbor in 2012. He received his MA from Loyola University Chicago in 2013. He then spent several years at Michigan State University, receiving his MD in 2018 and completing Internal Medicine residency in 2021. He currently lives in Tampa, FL where he works as an academic hospitalist with the University of South Florida. He has long been engaged in research, notably living in Uganda for three months during medical school to lead HIV research. He has been published in peer-reviewed journals and presented at national conferences across the USA



Mailing Flores Chang^{1*}, Nehemias Guevara¹, Marlon Argueta², Yomary Jimenez¹, Adler Vitaly¹, Salim Baghdadi²

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A rare case of symptomatic bradycardia secondary to aripiprazole on 61-yr male with bipolar disorder type 1: Case report and literature review

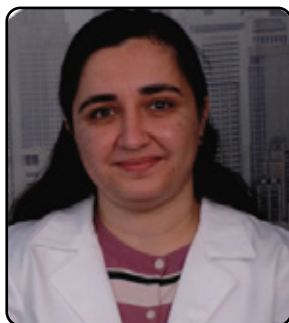
We present a case of a 61-year-old male with a medical history of bipolar disorder type I, diagnosed 1 year ago, recently started on aripiprazole. Presented to the Emergency Department (ED) complaining of intermittent episodes of dizziness that initiated after his second dose of Intramuscular (IM) aripiprazole, but worsened 3-day prior. In ED was found to have bradycardia of 44 beats/minute, normotensive, and pulse oximetry of 98% on room oxygen. An electrocardiogram showed sinus bradycardia of 44 bpm with QT of 410 msec. Cardiology evaluation was unremarkable. The psychiatric evaluation suggested discontinuation of Aripiprazole, with subsequent improvement of heart rate and resolution of bradycardia.

Audience Take Away:

- Explain the mechanism of action of the second generation of antipsychotics and their effects on the cardiovascular system
- Create awareness of the medical community's potential causes of symptomatic bradycardia in patients with antipsychotic treatment

Biography:

Dr. Mailing Flores Chang studied at University of El Salvador, in El Salvador, graduated as an MD in 2017. She then decided to continue her studies and do a residency program in Internal Medicine at St Barnabas Hospital in The Bronx, currently working as a PGY-3 and chief of residents. She is interested in cardiology where she will be applying in this upcoming season. She has done research in the field since medicine school where she did a study about AV block in chagas disease patients.



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Bridge to clip- adjunctive management of acute severe MR in the setting of cardiogenic shock

Acute severe Mitral Regurgitation (MR) can occur through different mechanisms with two primary categories being functional or degenerative. Acute severe MR complicates 5-12% of CS cases. Definitive treatment is surgical repair or replacement according to current valvular heart disease guidelines. In recent times, the MitraClip (MC) system has been proposed as an alternative to surgical therapies in high-prohibitive surgical risk patients. However, many patients with combined severe MR and Cardiogenic Shock (CS) require adjunctive therapies in an effort to stabilize the patient prior to proceeding with a complex intervention such as MitraClip. We present four cases of acute MR and CS with various etiologies that required the use of medical inotropes/pressors, Intra-Aortic Balloon Pump (IABP), Impella, or combination thereof that successfully allowed for stabilization of hemodynamics and bridging to completion of successful MitraClip that resulted in patient stabilization and cardiac recovery. Immediate improvement in severe MR and overall clinical status noted post-MC in all our cases suggest that use of MC can enhance acute cardiac functional status and has potential for treatment of cardiogenic shock due to acute severe MR in unstable patients despite appropriate therapies. Cardiogenic shock presages poor prognosis despite correction of acute severe MR. However, early mitral valve repair with MitraClip System in hemodynamically unstable patients can provide a minimally invasive and effective alternative with low post-procedural mortality rate.

Audience Take Away:

- Cardiogenic shock remains a clinical challenge that continues to have high mortality rates but early recognition and intervention is key
- The MitraClip system is a safe, effective, and minimally invasive alternative to surgical intervention for functional severe mitral regurgitation. However, the outcome is dependent on various factors including patient's baseline health and functional status as well as presentation with shock
- Using current standard therapies for cardiogenic shock stabilization to bridge to MitraClip with successful MR reduction can lead to favorable patient outcomes
- This requires a multidisciplinary Heart Team approach with flexibility in choosing adjunctive therapies of cardiogenic shock based on the variability in each case presentation.
- Feasibility at smaller community center

Biography:

She graduated University of California, San Diego in 2012 with a B.S. in Physiology and Neuroscience. Received my MD from St. George's University, School of Medicine, Grenada, West Indies in 2020. She is currently in last year of internal medicine residency with plan to pursue Cardiology fellowship in the future also have a strong interest in medical education. Areas of interest include Interventional and Structural Cardiology as well as Cardio-oncology.



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Practice pattern of rhythm control treatment among patients hospitalized for atrial fibrillation in china: Findings from the improving care for cardiovascular disease in china-atrial fibrillation project

Introduction: Increasing evidence has shown the benefit of early rhythm control in patients with atrial fibrillation (AF). However, little is known about the recent practice pattern of rhythm control treatment in hospitalized AF patients in China.

Methods: The study was based on data collected by the Improving Care for Cardiovascular Disease in China-AF project, a collaboration study of the American Heart Association and the Chinese Society of Cardiology. Patients hospitalized for AF from February 2015 to December 2019 in 151 tertiary hospitals across China were included in this study after excluding the patients with long-standing or permanent AF.

Results: Among 23 972 AF patients included in this study, 19.0% were first-diagnosed AF, 53.4% were paroxysmal AF and 27.6% were persistent AF. Of the AF patients, 37.0% were comorbid with structural heart disease, 6.0% had a history of catheter ablation, and 14.2% were on antiarrhythmic drugs before admission.

Overall, 53.2% (12 746) of the patients received rhythm control treatment during hospitalization. The patients with paroxysmal AF were more likely to receive rhythm control treatment (62.2%) compared with those with first-diagnosed AF (40.5%) or persistent AF (44.5%). Among the patients who received rhythm control treatment, 68.9% of the patients received catheter ablation, while 28.6% received antiarrhythmic drugs only, 2.4% and 0.1% received electrical cardioversion and surgical ablation, respectively. Among patients with persistent AF and rhythm control treatment, 75.1% of the patients received catheter ablation, which was higher than that in patients with first-diagnosed AF (61.2%) or patients with paroxysmal AF (68.4%). Of the 3640 patients with antiarrhythmic drugs as rhythm control treatment, 68.7% received amiodarone, 21.1% received propafenone, and 9.3% received other antiarrhythmic drugs. Among the patients who received propafenone, 92.7% of the patients received the drug intravenously. In the opposite, most of the patients with amiodarone received the drug orally (77.4%). About 12.6% (171/1356) of the patients with structure heart disease received propafenone that was not recommended by the guidelines.

Conclusions: About one half of the patients hospitalized for AF in tertiary hospitals in China received rhythm control treatment during hospitalization. Catheter ablation was the most commonly used rhythm control treatment. The use of rhythm control treatment differed by AF types. For patients with antiarrhythmic drugs as rhythm control treatment, amiodarone was the most commonly prescribed antiarrhythmic drugs. The rhythm control treatment strategies were properly used in most of the AF patients.

Audience Take Away:

- The present study provided the up-to-date nationwide data on the practice pattern of rhythm control treatment in patients hospitalized for atrial fibrillation in China
- Findings from the present study identified the gaps between the guidelines and clinical practice in rhythm control treatment among patients hospitalized for AF in China
- Findings from the present study can serve as the basis for further quality evaluation and quality improvement, and provoke more studies for better clinical practice related to rhythm control treatment

Biography:

Dr. Yang studied epidemiology and statistics at Peking University and graduated as PhD in 2017. Afterwards, she has been working at the Beijing Institute of Heart, Lung and Blood Vessel Diseases. Her research interests are focused on the assessment and improvement of quality of care in cardiovascular diseases. She has published more than 20 research papers in SCI journals.

Rishita Mondal*, Syed Mujtaba Hussain Naqvi, Kumar Gaurav

Cardiology, Medical Affairs, Global Generics-India

Dr. Reddy's Laboratories, Hyderabad, India

An innovative hub-&-spoke model for management of ACS

Background: Currently there's lack of adequate medical expertise & facilities available in India for managing emergencies in ACS. According to the Cardiologists Society of India (CSI), there are only 5500 cardiologists available today in the country. Today with a population of 1.3 billion, there is only one cardiologist for the 30, 000 population in our country alone compared to US where there is only one Cardiologist for a population of 15,000 requiring Cardiovascular consultation & intervention according to the Physician per Specialty data report by the Association of American Medical Colleges.

Objective: There is an unmet need for a digital application-based model to implement a good referral direction system where Cardiologists at tertiary care (PCI-capable) centres can virtually connect with physicians at a primary health centre or at district/ sub-urban hospitals (mostly PCI non-capable centres).

Design: The hub-and-spoke organization design is a model consisting of an anchor establishment (hub) which offers a full array of services, complemented by secondary establishments (spokes) which offer more limited, specific-service oriented arrays, routing patients who require more intensive services to the respective nearest hubs for treatment. The hub-and-spoke model yields a large healthcare network comprising of a main campus and one or more satellite campuses. These networks are highly scalable, with satellites being added as needed or desired which makes it much more efficient than organization designs which replicate operations across multiple sites.

Methodology of proposed app: This app would be devised in a way that the opening page comes with a menu bar option where doctors at the spoke practising at rural/ peripheral centres can send patient data such as age, symptoms, details of associated co-morbid conditions, h/o drugs & medication & can also upload ECG of the patients through the same interface. This information will be immediately transferred to the Cardiologist at the hub who could revert on assisting spoke doctors to diagnose whether it is a STEMI/ NSTEMI based on ECG, requirement of initial thrombolysis therapy- anticoagulants & antiplatelet drug therapy. This app will also be designed to facilitate the subsequent shifting of such patients to higher centres if required. The app will also contain additional medical information for exchanging the knowledge of health care professionals through consistent guideline updates, published literature on the disease & treatments. Furthermore, it can be utilized to share the real experiences of doctors managing wide variety of ACS patients all around the country.

Conclusion: Patients report at remote rural areas with complaints of sudden chest pain & other symptoms of ACS which requires adequate sound expertise on behalf of the peripheral primary healthcare physicians to diagnose ACS, differentiate between STEMI & NSTEMI, & proper guidance to provide appropriate initial management of such cases. Hence, the proposed digital application connects these doctors with Cardiologists available at various hubs in metro cities to guide on proper management as per protocol. Furthermore, multimodality application of this app will improve rapid exchange of info between hub and spoke, improve referral, knowledge enhancement of HCPs on guidelines mediated management of ACS hence improving patient outcomes.

Audience Take Away:

- Management of ACS at the centres where specialty-care cardiac services are not available
- First line management of ACS at peripheral centres so that optimal benefit is offered to the patient at first contact basis with the healthcare provider
- Increase in the quality of medical care at peripheral centres in resource restricted countries
- The advantage of hub & spoke model of medical care at resource restricted countries with limited specialized cardiac care centres
- The hub & spoke platform for diagnosis & management of N-STEMI & STEMI at peripheral centres

Biography:

Dr. Rishita Mondal studied MBBS at ESI-PGIMSIR & ESIC Medical College & Hospital, Kolkata, India & graduated as a medical doctor with internship in the year of 2019. She got the opportunity to complete a Certification as a Basic Life Support Provider under the curriculum of American BLS for Healthcare providers (CPR & AED) in Trauma Management. She then joined the All-India Institute of Medical Sciences in New, Delhi, India as a Resident Doctor in the Department of Trauma Surgery. Following which she moved to All India Institute of Medical Sciences in Bhubaneswar, India and took up a job as a Resident Doctor in the Department of Surgical Gastroenterology. After working there for a year, she obtained the position of Medical Advisor in the Cardiology portfolio at Dr. Reddy's Laboratories, India under the direct supervision of Dr. Syed Mujtaba Hussain Naqvi (Team Lead, Cardiology) & Dr. Kumar Gaurav (Director, Medical affairs). She now serves as a medical/scientific expert to both internal & external stakeholders in the therapy area, develops & executes patient centric interactions at Pan-India level, fosters peer-to-peer relationships with eminent consultant Interventional Cardiologists, Cardiothoracic surgeons, Vascular surgeons, Intensivists across the country, Medical societies, Academic institutions, & Regulatory bodies to gather insights on medical & research to create high quality medical development plans, including clinical programs & talks to enhance knowledge, access & awareness on Cardiovascular drugs in accordance with the global guideline recommendations. She is also responsible for providing tactical and strategic inputs, evaluation of new product ideation for launches, imparting product & disease area training to field force, providing business/technical expertise to Business & Commercial teams for overall development & execution of medical & regulatory strategy for assigned brands. She also acts as an expert speaker at various brand positioning, promotional & national scientific events to disseminate information to large group of healthcare professionals while stimulating clinical dialogue to gain better perspectives & views on existing therapy management. She regularly interacts with multiple Key Opinion Leaders at various national CME programmes, advisory board meetings, congresses, symposia to develop a collaborative relationship & adds value by leveraging their expertise to drive brand strategies of Cardiovascular products.

POSTERS

DAY 01

3RD EDITION OF

CARDIOLOGY WORLD CONFERENCE

14-15 SEPT



Sirous Sadeghian Chaleshtori^{*1,2}

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Choosing a suitable animal model for causing myocardial infarction

The diseases of cardiovascular are one of serious issues of the health. For applied objectives, medical researches should be according to scientific investigates on animals. Use an animal experimental model for myocardial infarction (MI) has specific importance. The differences in the cardiac structures between animals and human are which difficult to design a good animal model for creating human MI. Studies done on the large animals provides worth information for the researchers because of alike features of their hearts to human heart, but working with them is hard and maintenance costs are high. In comparison, using the small animals has advantages such as easy handling, less maintenance costs and high growth rate but in some of them cannot induce the natural pathogenesis of human MI. Thus, due to the high prevalence and mortality caused by MI, it is necessary consideration to creating a proper model of MI in animals and assessing the new treatment ways.

Keywords: Myocardial infarction, Animal model.

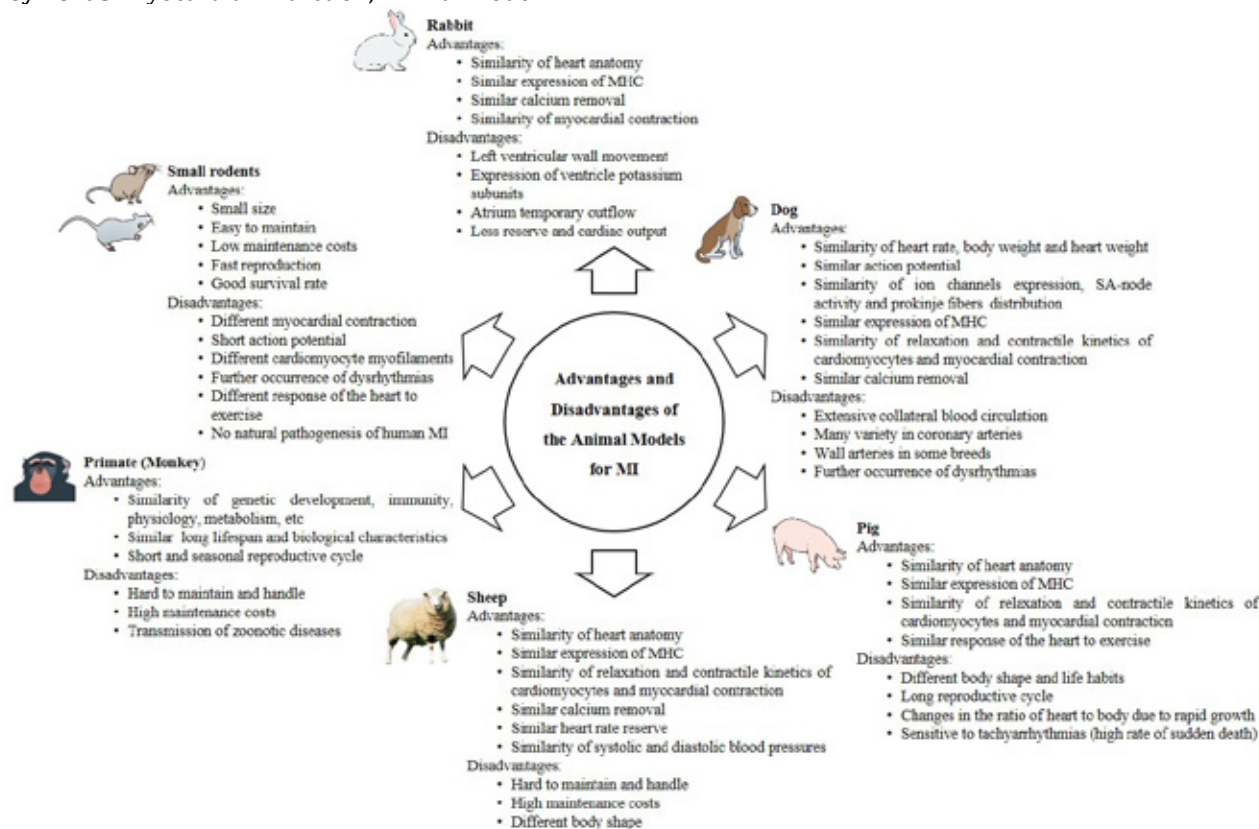


Figure 1: Advantages and disadvantages of the different animal models (small rodents (mouse and rat), rabbit, dog, pig, sheep and primates) for mimic the pathophysiology of human MI.

Biography:

Dr. Sirous Sadeghian Chaleshtori, an assistant professor of internal medicine, faculty of veterinary medicine at University of Tehran, Iran.



O.S.Sychoy*, T.V.Getman, O.V.Stasyshyna, O.M.Romanova, O.V.Sribna, O.V.Ilchyshyna, S.I.Deyak

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Heart failure and the state of intracardiac hemodynamics in patients with atrial fibrillation depending on the past infection with Covid-19

Introduction: It is known that most patients with Atrial Fibrillation (AF) experience morphofunctional heart remodeling, and AF is one of the main causes of Heart Failure (HF).

The aim of our study was to evaluate the course of HF, and to assess the state of intracardiac hemodynamics and cardiac contractility in patients with AF, depending on the past Coronavirus Infection (CI).

Research material and methods: We examined 167 patients aged 62.5 ± 0.09 years with AF, 14 of them (8.4%) also had atrial flutter. 118 people had a history of COVID-19 infection on average 6.2 ± 0.5 months ago. They made up the 1st group of examined patients. The remaining 49 patients did not have a history of this infection. They constituted the 2nd group of the study group, which was the control group. The specific number of patients with paroxysmal, persistent and permanent forms of AF in the groups was comparable. Transthoracic echocardiography was performed according to the standard technique.

Results of the study: As a result of the study, we found that the class of heart failure according to NYHA in patients of the examined groups did not differ - respectively 1.41 ± 0.06 and 1.43 ± 0.06 , (ns) in patients of groups "1" and "2". We also did not find any difference in hemodynamic parameters characterizing the systolic function of the left ventricle (LV). So, the values of the end-diastolic volume (117.0 ± 7.6 mm and 116.0 ± 7.2 mm), end-systolic volume (55.7 ± 4.9 mm and 55.2 ± 4.7 mm) and ejection fractions ($55.0 \pm 2.1\%$ and $54.4 \pm 2.0\%$) in the groups did not differ significantly. However, statistical significance was obtained in indicators characterizing LV diastolic function. So, significantly different flow rates in the 1st and 2nd groups of patients - E (60.8 ± 1.63 sm/s and 94.6 ± 2.97 sm/s, $p < 0.001$), A (61.8 ± 0.83 sm/s and 73.1 ± 1.03 sm/s, $p < 0.001$), their E/A ratios (0.98 ± 0.02 and 1.39 ± 0.03 , $p < 0.001$) and DE score (175.9 ± 2.20 ms and 202.5 ± 4.03 ms, $p < 0.001$). A more significant violation of LV diastolic function after CI led to an increase in the diameter of the left atrium (LA) (4.99 ± 0.14 cm in the 1st group compared with 4.40 ± 0.004 cm in the 2nd group, $p < 0.001$) and LA index (46.4 ± 0.011 cm in the 1st group compared with 42.93 ± 0.08 in the 2nd group, $p < 0.001$).

Conclusion: In patients with AF, after undergoing CI, the LV diastolic function begins to suffer first, which leads to an increase in the size of the LA.

Audience Take Away:

- We found that the class of heart failure according to NYHA in patients with AF did not differ – respectively after a history of COVID-19 infection. We also did not find any difference in hemodynamic parameters characterizing the systolic function of the Left Ventricle (LV). But In patients with AF, after undergoing CI, the LV diastolic function begins to suffer first, which leads to an increase in the size of the left atrium.

Biography:

Prof., Dr.Med.S., MD Oleg Sychoy graduated in 1989 from O. Bogomolets Kiev Medical Institute. Operating from 1989 to the present has been working in National Research Center "Institute of cardiology named after M. Strazhesko" of the National Academy of Sciences of Ukraine, Kyiv. In 1992 he defended his Ph.D. thesis in cardiology. In 1996 he defended his doctoral dissertation. Headed since 1999 Department of Clinical Arrhythmology and Electrophysiology. Head of the working group on arrhythmias of the Association of Cardiologists of Ukraine since 2004. President of the Association of Arrhythmologists of Ukraine since 2010. Vice President of the Association of Cardiologists of Ukraine since 2020. Member of ESC and EHRA. Author of more than 850 scientific papers.



O.V. Stasyshyna

Department of Clinical Arrhythmology and Electrophysiology, National Research Center “Institute of Cardiology named after M. Strazhesko” of the National Academy of Sciences of Ukraine

Heart rate variability in patients with atrial fibrillation depending on previous COVID-19 infection

Introduction: It is known that the balance between sympathetic and parasympathetic regulation of the heart is characterized by indicators of Heart Rate Variability (HRV). In patients with paroxysmal and persistent forms of Atrial Fibrillation (AF), HRV values may differ from normal values.

The purpose of our study was to evaluate indicators of HRV in patients with AF depending on the past Coronavirus Infection (CI).

Material and methods of research: We examined 131 patients aged 62.5 ± 0.09 years with paroxysmal or persistent forms of AF in sinus rhythm. 93 people had a history of an average of 6.2 ± 0.5 months ago of COVID-19 infection. They made up the 1st group of examined patients. The remaining 38 patients did not have a history of this infection. They constituted the 2nd group of the study, which was the control group. The specific number of patients with paroxysmal and persistent AF in the groups was comparable. 24 -h Holter monitoring ECG and indicators of HRV were performed according to standard methods.

Results of the study: We found that in the group was a significant difference in minimum heart rate per day (HRD) (50.3 ± 1.4 beats/min and 45.5 ± 1.4 beats/min in groups 1 and 2, $p < 0.01$) and maximum HRD (113.0 ± 2.0 beats / min and 106.1 ± 1.72 beats / min in the 1st and 2nd groups, $p < 0.01$), as well as a trend towards statistical significance between the average HRD (71.2 ± 1.6 beats/min and 65.7 ± 2.9 beats/min in the 1st and 2nd groups). Significant confidence was also obtained for such indicators between groups “1” and “2” in such indicators of HRV as - SDANN (102.7 ± 2.33 and 151.7 ± 1.23 ms, $p < 0.001$), SDNN ($124, 3 \pm 4.06$ and 181.3 ± 4.83 ms, $p < 0.001$), and RMSSD (100.4 ± 4.57 and 173.2 ± 13.51 ms, $p < 0.001$).

Conclusion: In patients with AF, after undergoing CI, was a change in the autonomic regulation of the heart rhythm towards sympathetic activation, and as a result, an increase in the electrical instability of the atria.

Audience Take Away:

- Balance between sympathetic and parasympathetic regulation of the heart, which characterized by indicators of Heart Rate Variability (HRV) in patients with paroxysmal and persistent forms of Atrial Fibrillation (AF) was studied. Shown, that in patients with AF, after undergoing CI, was a change in the autonomic regulation of the heart rhythm towards sympathetic activation. It is important to pay attention to this, because a change in HRV indicators usually indicates the readiness of the heart for arrhythmias in general and AF specifically

Biography:

Dr. Oksana Stasyshyna (MD) graduated from Bukovinian national Medical University in 2016. She completed an internship in the specialty “internal medicine” in 2016-2018. In 2018, after completing specialization courses, she received the specialty “cardiology”. In 2018-2020, she worked as a cardiologist at the Chernivtsi hospital. In 2020, she passed the competition for graduate school in the Department of Clinical Arrhythmology and Electrophysiology, National Research Center “Institute of cardiology named after M. Strazhesko” of the National Academy of Sciences of Ukraine, Kyiv, where is training currently. In September 2021, she was awarded a prize at the competition of young scientists at the XXII National Congress of Cardiologists of Ukraine. Has publications in the national journal “Arrhythmology”.

**Stephanie Joppa*, Nunzio Gaglianella, Panayotis Fasseas**

Medical College of Wisconsin, United States

Intraventricular thrombolysis for lvad thrombosis

Intro: This is a case of a patient with previous Left Ventricular Assist Device (LVAD) pump thrombosis and prior pump exchange, who developed recurrent pump thrombosis refractory to medical treatment and was not a candidate for a re-do pump exchange.

Case: A 57 year old woman with stage D non-ischemic cardiomyopathy was admitted with a Heartware LVAD pump thrombosis. Previous pump thrombosis two years prior resulted in a pump exchange. She had a recent history of a large GI bleed and iron deficiency anemia. She was not a candidate for heart transplant due to obesity. Initial treatment consisted of unfractionated heparin, aspirin, and warfarin. Due to suspected haemolysis she required ongoing blood transfusions. Her LVAD demonstrated worsening function with an acute increase in watts and flows (>10 l/min) despite an INR of 3.9. She was not a candidate for a third pump in view of scarring, RV failure, and the patient's poor response to inotropes indicating defunctionalisation would not be well tolerated. Given concern for progression of thrombus despite aggressive anticoagulation it was decided to proceed with delivery of thrombolytics directly into the left ventricle (LV) in order to minimise systemic lytic effects. A 6Fr angled pigtail catheter was advanced into the mid-LV cavity and 10mg Alteplase were administered adjacent to the pump. There was immediate improvement with the pump power quickly decreasing from 8.1 watts to 4.4, then to 3.5. There were no complications from the procedure. This change lasted until the following day, when there were repeat power surges (>5 watts) and flow speeds (>10 lpm), consistent with recurrent pump thrombosis despite an INR of 4.4. She continued to require multiple transfusion of blood products. In view of the short-lived response to intraventricular thrombolysis, no surgical options, and worsening hemodynamics, the patient ultimately decided to transition to hospice care with palliative inotropy.

Discussion: LVADs, while an important advanced therapy for advanced heart failure, can develop thrombosis, even with optimal anticoagulation. While pump exchange can be done, the risk may be prohibitive. Therefore, in a select subset of patients, intraventricular thrombolysis may be considered. Our case showed an immediate improvement in pump flow speed and power, but cautions us that results may be temporary. Ultimately, this therapy may be considered in a select series of patients who fail to respond to aggressive anticoagulation and are at high risk for bleeding with the use of systemic thrombolysis.

Biography:

Dr. Stephanie Joppa studied French for her bachelor degree and then attended Imperial College London for medical school. She worked at King's College London as a junior doctor before starting training in internal medicine at the University of Minnesota, and then proceeded to start cardiology fellowship at the Medical College of Wisconsin.



Sepideh Darbandi *, Antony Anandaraj, Samuel Congello, Fayez Siddiqui

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A case of delayed contrast anaphylaxis leading to ST-Elevation Myocardial Infarction (STEMI)

Case: Patient is an otherwise healthy 69 year old male with inferior STEMI s/p proximal RCA stent 3 days prior who was discharged in stable condition. Patient had been discharged on aspirin and clopidogrel for dual antiplatelet therapy. 48 hours after discharge, and a total 72 hours after initial angiogram, he noted to have hives on his chest wall and abdomen with trouble breathing at home. He sought medical attention again. He was noted to have ST-T wave elevation in the anteroseptal leads concerning for anterior MI (see Figure A). During this time, he also became hypotensive. He was given anaphylactic regimen due to presumed allergic reaction, and subsequently the anteroseptal lead changes resolved with new findings in the inferior leads (see Figure B). This was an inconsistent presentation of STEMI within two separate territories. Decision was made to transfer patient urgently to our facility for higher level of care. In the meantime, he was treated with benadryl, steroids, and fluids for anaphylactic shock. His echocardiogram showed left ventricular function of 55% with mild inferior wall hypokinesis, otherwise no significant valvular disease.

Upon arrival to our facility, patient was urgently taken to catheterization lab again. The left coronary system was engaged first which did not show any new findings from angiogram 3 days prior. Therefore, we proceeded to the right coronary system which was found to have acute thrombosis of the previously placed proximal RCA stent. Balloon angioplasty was performed with subsequent aspiration thrombectomy with immediate restoration of flow in the right coronary system. Patient had an uneventful postoperative course and was continued on benadryl until day of discharge. He was able to discharge to home in stable condition. He was discharged on aspirin and ticagrelor for dual antiplatelet therapy.

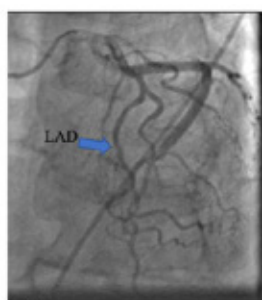


Figure C

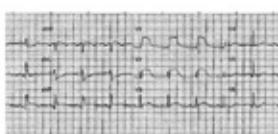


Figure A

Figure A: Presenting EKG after only 48 hours after discharge from initial hospitalization that patient had received proximal RCA stent.

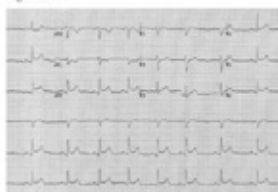


Figure B

Figure B: 2 hours after anterior STEMI EKG in Figure A, patient's EKG showing inferior STEMI.



Figure D

Figure C: Normal left coronary artery anatomy.

Figure D: Right coronary system showing acute occlusion of prior stent with new mid RCA lesion.

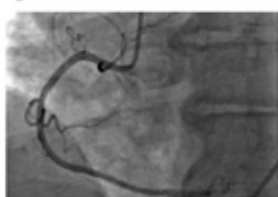


Figure E

Figure E: Immediate restoration of flow after aspiration thrombectomy of the RCA.

Conclusion: It is known from prior literature that anaphylaxis can trigger a pro-thrombotic state as it can acutely affect platelet numbers and function. In the case of our patient, it is hypothesized that delayed contrast reaction caused anaphylaxis which ultimately led to thrombosis in a newly deployed stent. Further research can be helpful clinically to determine management or screening recommendations in at risk patients.

Audience Take Away:

- This is an uncommon presentation of a common cardiac emergency and learning about this atypical presentation can help clinicians in management of future encounters
- There is further research that needs to be conducted in this field specifically. Learning about this presentation can help preset the idea of expanding on this topic through research

Biography:

Dr. Sepideh Darbandi is the Chief general cardiology fellow at Mercy, One North Iowa Medical Center, located in Mason City, Iowa. She completed medical school at Oklahoma State University and has been involved in multiple leadership roles for graduate medical education and academia. Her passion is in heart disease in women, imaging, and preventive cardiology.



Hajra Munawar

University of Connecticut, Internal Medicine Residency, Farmington, CT, USA

Early initiation of extracorporeal membrane oxygenation saves live in severe covid 19 infection: A case report

Background: The utilization of Extracorporeal Membrane Oxygenation (ECMO) as a rescue therapy for patients suffering from Covid 19 infection with respiratory failure remains controversial. According to the Extracorporeal life support organization registry, there are 13,126 patients currently on ECMO as of February 25th, 2022. The data reports an in-hospital mortality rate of 47% in patients who were put on ECMO in the last 90 days. We hypothesize that patients may have a higher chance of improvement with early initiation of ECMO treatment for severe Covid 19 disease.

Case Presentation: A 46-year-old female with a past medical history of morbid obesity, iron deficiency anemia, and asthma was brought to the hospital via paramedics due to altered mental status and shortness of breath. Upon arrival at the Emergency Department (ED), the patient was found to be lethargic, confused, and in severe respiratory distress. Her clinical examination revealed severe hypoxia with SpO₂ 65%, tachypnea at 55 breaths/min, tachycardia at 154 beats/min, and hypotension with a blood pressure of 96/60 mmHg. On physical exam, the patient was disoriented and the only other pertinent positive finding was diffuse coarse lung sounds bilaterally on auscultation. Her Initial chest radiography showed extensive diffuse bilateral pulmonary infiltrates. Labs reflected leukocytosis with WBC of 13.8 thou/uL, CRP of 29.1 mg/L, Ferritin of 3083 ug/L, and Lactic acid of 3.4 mmol/L. A nasopharyngeal swab was positive by PCR for SARS-CoV-2. While still in the ED, the patient's respiratory status continued to deteriorate. She didn't tolerate Bilevel Positive Airway Pressure (BiPAP), high flow oxygen, or proning due to continuous hypoxia and agitation. She was ultimately intubated and placed on Mechanical Ventilation (MV). Multiple MV settings were tried but her respiratory status kept worsening even with high Positive End-Expiratory Pressure (PEEP), deep sedation, and paralysis using neuromuscular blockers. A decision was made to commence veno-venous ECMO on day 1. During her stay at the hospital, she completed a 5-day course of remdesivir, received 2 units of convalescent plasma and 1 dose of sarilumab. She also received Intravenous (IV) steroids that were eventually weaned to prednisone with taper. On day 14th of hospitalization, a tracheotomy tube was placed. After a few days, there was a significant improvement in the patient's condition. She was decannulated from ECMO on day 19th of hospitalization (ECMO day 19). She was weaned from the ventilator gradually as she started to tolerate high flow oxygen via trach mask and was transferred out of the intensive care unit once hemodynamically stable. The patient was eventually discharged to rehabilitation.

Conclusion: This case report demonstrates a positive outcome in a relatively young patient with acute respiratory failure from COVID-19 due to prompt ECMO initiation on day 1 of the hospitalization. The emphasis here is the usefulness of early ECMO treatment vs late initiation, especially in younger patients without extensive comorbidities. To validate these findings, future prospective multi-center studies are needed in a larger cohort of patients.

Audience Take Away:

- The audience will learn the indications of ECMO use in Covid 19 patients
- Most common complications with ECMO use in Covid 19 patients

Biography:

Dr. Munawar studied medicine at Rawalpindi Medical University, Pakistan and graduated as MBBS in 2017. She is doing her residency training in internal medicine at University of Connecticut, United States. Currently working with Asia-Pacific extracorporeal life support organization (APELSO) in collaboration with centers within the SPRINT-SARI and ISARIC Network on international multi-centre, prospective/retrospective observational study of patients in participating hospitals and ICUs with covid 19 infection.



Shikha Jha

Internal Medicine, Saint Peter's University Hospital
Rutgers University, RWJMS, New Brunswick, NJ, USA

Near miss of aortic stenosis in setting of spinal canal stenosis: Not just another fall

Introduction: Syncope is a transient loss of consciousness with several possible causes. Aortic stenosis is one of the most common causes of syncope in elderly patients.

Case Presentation: A 65-year-old female patient presents with a chief complaint of a fall. She had an abrupt loss of consciousness at rest with regain in less than a minute. She has a history of spinal canal stenosis and multiple past visits for recurrent falls. An ejection systolic murmur grade 2 is present in the right upper sternal border, radiating throughout the precordium. Electrocardiogram showed normal sinus rhythm, left axis deviation, and right bundle branch block. Cardiac troponins were normal.

Results: Echocardiogram showed normal ejection fraction and heavy calcification of the aortic valve with the restricted opening. Visually, moderate aortic stenosis was seen. Based on the gradient and aortic valve area, the patient had severe aortic stenosis.

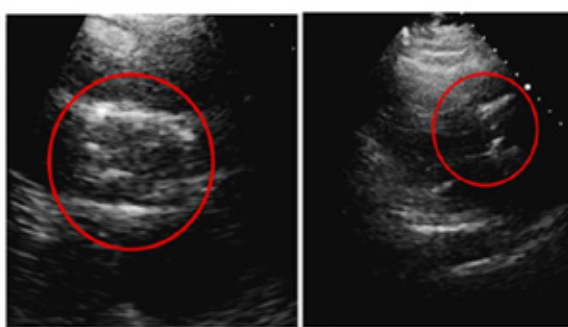
Decision making: The cardiology team was consulted. Due to the presence of coronary risk factors and discrepancy in findings, cardiac catheterization was done prior to further decision-making on valve replacement. It showed moderate nature of the stenosis and no coronary artery disease. In view of symptomatic aortic stenosis, the patient was evaluated for aortic valve replacement via shared decision making.

Conclusions: Severe aortic stenosis can manifest as recurrent syncopal episodes, especially in elderly patients. It can be easily confused as benign fall, in patients with spinal canal stenosis. A meticulous history taking and physical exam lead to prompt diagnosis and management.

Related Images:



Electrocardiogram: Normal sinus rhythm, left axis deviation, and right bundle branch block



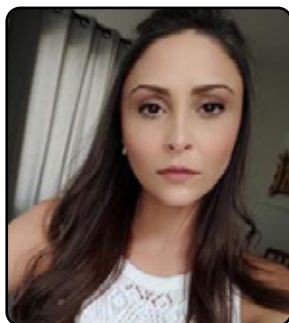
Cardiac echocardiogram: Heavy calcification of the aortic valve with restricted opening

Audience Take Away:

- Fall is a common manifestation in elderly population
- Cardiac causes are often missed in the setting of preexisting other causes, such as spinal canal stenosis
- A meticulous history taking, and physical exam can lead to catch of serious underlying etiology such as aortic stenosis
- A timely investigation and management of valvular heart disease, such as aortic stenosis, saves a patient from life threatening complications such as sudden cardiac death

Biography:

Dr. Shikha Jha completed her medical school from National Medical College, Nepal. She worked as a medical officer in Nepal for 2 years. She completed Global Clinical Scholars Research Training from Harvard Medical School, Boston, MA, USA in 2020. She joined residency in Internal Medicine at Saint Peter's University Hospital, New Jersey, USA in 2020. She is currently a 2nd year medical resident. She wants to pursue cardiology in future. She enjoys enhancing her research skill in this subspecialty via writing papers, attending national and international conferences. She has published several articles in cardiology topics.



Duane G Pereira*, Nitin Puri, Sneha S. Pillai, Muhammad A. Chaudhary, Komal Sodhi

Departments of Surgery and Biomedical Sciences, Marshall University Joan C. Edwards School of Medicine, Huntington, WV, USA

Na,K-ATPase mediated redox signaling exacerbates inflammation and kidney dysfunction in murine sepsis model

Oxidative stress and associated inflammatory processes, hypotension, and kidney dysfunction are crucial in the development and progression of sepsis, resulting in an immune response that leads to multiple organ failure. Hence, the strategies to limit this systemic inflammatory response might result in the development of an effective sepsis therapy. Previous studies from our lab have demonstrated the role of Na/K-ATPase signaling in exacerbating systemic oxidative stress and inflammation and the potential role of Na/K-ATPase signaling antagonist, pNaKtide, in ameliorating several pathophysiological abnormalities. The aim of this study is to demonstrate the role of Na,K-ATPase signaling in exacerbating oxidant stress, hypotension and kidney dysfunction noted in a murine model of sepsis. Furthermore, we aim to demonstrate the effect of systemic administration of Na,K-ATPase signaling antagonist, pNaKtide, in experimental sepsis using cecal ligation and puncture (CLP) model, as a drug intervention against septic shock. Murine sepsis was induced by CLP in male C57BL6 mice with or without pNaKtide (25 mg/kg body wt) which was administered, intraperitoneally, 24 hours before CLP procedure. Sham surgery was performed without the ligation and puncture, which served as controls for the study. All mice were assessed for blood pressure and Murine Sepsis Score (MSS) at baseline (before Sham or CLP), 8 hours and 24 hours after Sham or CLP. Mice were euthanized after 24 hours of Sham or CLP surgery and kidneys were collected for morphological and biochemical assessment. Blood was used to measure plasma creatinine and inflammatory cytokines. Systemic administration of pNaKtide demonstrated improved blood pressure and MSS at 24 hours following CLP surgery, as compared to CLP mice without pNaKtide. Histological assessment of kidney tissues by H&E staining showed significantly less congestion, infiltration of inflammatory cells in CLP mice administered with pNaKtide, as compared to CLP alone. pNaKtide also improved kidney function and systemic inflammatory cytokines (TNF α and MCP1), as well as improved mRNA expression of inflammatory and macrophage infiltration markers, in kidney tissues of CLP mice. Our study demonstrates that antagonism of Na,K-ATPase oxidant amplification loop by pNaKtide may attenuate CLP-induced sepsis by inhibition of inflammatory milieu noted in this pathophysiological condition. Hence, Na,K-ATPase signaling may serve as a viable clinical target for therapeutic intervention of sepsis and associated inflammatory mechanisms.

Audience Take Away:

- The findings from our study show changes in the systemic inflammation and tissue-specific phenotypic alterations induced by CLP
- Our future studies will aim to dissect underlying molecular mechanisms, as well as elucidating mediators that potentiates phenotypic alterations noted in sepsis
- If our data is confirmed in humans, novel targets for therapeutic intervention for sepsis are apparent

Biography:

Dr. Duane graduated in Biochemistry at the Federal University of São João Del-Rei (UFSJ) in 2014, Master in Biochemistry and Molecular Biology in 2016, and PhD in Biochemistry and Molecular Biology at the same University in 2021. Her research work at the Cellular Biochemistry Laboratory was on cell signaling and the oxidative stress process. Currently, she is doing her postdoctoral research at Marshall University Joan C. Edwards School of Medicine, Huntington, WV, USA.



Sneha S. Pillai^{*1}, Nitin Puri¹, Hari Vishal Lakhani¹, Duane Pereira¹, Maria Tria Tirona², Ellen Thompson³, Komal Sodhi¹

¹Departments of Surgery and Biomedical Sciences, Marshall University Joan C. Edwards School of Medicine, Huntington, WV, USA

²Department of Oncology, Edwards Comprehensive Cancer Center, Marshall University Joan C. Edwards School of Medicine, Huntington, WV, USA

³Division of Cardiology, Department of Internal Medicine, Marshall University Joan C. Edwards School of Medicine, Huntington, WV, USA

Early preclinical diagnosis of trastuzumab induced cardiotoxicity among breast cancer patients in West Virginia

The manifestation of cardiotoxicity induced by chemotherapeutic agents is a well-established pathophysiological consequence which may lead to chronic, progressive and often irreversible cardiac damage. While treatment options for breast cancer varies depending on the differentiated subtypes, trastuzumab remains one of the common therapeutic regimens, a humanized monoclonal antibody engineered to specifically target Human Epidermal growth factor Receptor 2 (HER2) proteins. Trastuzumab related cardiotoxicity typically results in an overall decline in cardiac function, primarily characterized by reduction in Left Ventricular Ejection Fraction (LVEF) and development of symptoms associated with heart failure. Current strategies for the monitoring of cardiac function, during trastuzumab therapy, includes serial echocardiography, which is cost ineffective as well as offers limited specificity, while offering limited potential in monitoring early onset of cardiotoxicity. The prognostic approach using comprehensive assessment of panel of biomarkers is minimally invasive, highly cost effective and provides high specificity, proving to be a superior modality over conventionally utilized serial echocardiography. Hence, this study aims to develop a panel of novel biomarkers and circulating miRNAs for the early screening of trastuzumab induced cardiotoxicity. Patients with clinical diagnosis of invasive ductal carcinoma were enrolled in the study, with blood specimen collected and echocardiography performed prior to trastuzumab therapy initiation at baseline, 3- and 6-months post trastuzumab therapy. Following 6-months of trastuzumab therapy, about 18% of the subjects developed cardiotoxicity, as defined by reduction in LVEF. Our results showed significant upregulation of biomarkers and circulating miRNAs, specific to cardiac injury and remodeling, at 3- and 6-months post trastuzumab therapy. These biomarkers and circulating miRNAs significantly correlated with the cardiac injury specific markers, troponin I and T. The findings in the present study demonstrates the translational applicability of the proposed biomarker panel in early preclinical diagnosis of trastuzumab induced cardiotoxicity, further allowing management of cardiac function decline and improved health outcomes for breast cancer patients.

Audience Take Away:

- The present study demonstrates strong translational utility of the proposed biomarker panel in predicting early onset of trastuzumab induced cardiotoxicity in patients with breast cancer
- The present study offers crucial evidence and a cost effective, non-invasive predictive modality demonstrating the efficacy of the proposed panel of biomarkers
- The proposed panel offers a viable guide to the clinicians in developing mitigation strategies, including dose adjustments, mitigation of cardiovascular risks, or alternate treatment therapies
- The implementation of this panel of biomarkers may improve health outcomes and reduce mortality associated with chemotherapy induced cardiotoxicity

Biography:

Dr. Sneha S Pillai completed her Master of Science (2010) and Master of Philosophy (2011) in Biochemistry from University of Kerala, India. She received her PhD degree in 2017 from the same institution. Then she worked as Assistant professor at Department of Environmental Engineering, College of Engineering Trivandrum, India for two years. After that she joined as Post-Doctoral Research Scientist at Department of Biomedical Sciences, Joan C. Edwards School of Medicine, Marshall University Huntington, WV, USA in 2019. After completing 3 years of post-doctoral research, currently she is working as Research Assistant Professor at Joan C. Edwards School of Medicine, Marshall University Huntington, WV, USA. Her area of interest include cell Biology, molecular biology, immunology, phytochemistry, biochemistry of metabolic disorders and their mechanistic approaches and she has published several research and review articles in this area.



Mailing Flores Chang^{1*}, Nehemias Guevara¹, Jane Atallah¹, Jonathan Segal^{1,2}, Carol Epstein^{1,3}

¹ Department of Medicine, Internal Medicine, SBH Health System, Bronx, NY, USA

² Division of Cardiology, Department of Medicine, SBH Health System, Bronx, NY, USA

³ Division of Infectious Disease, Department of Medicine, SBH Health System, Bronx, NY, USA

A rare case of acute pericarditis with pericardial effusion due to co infection of coxsackie virus A and B: A case report and literature review

Pericarditis refers to an inflammatory process involving the heart, which can be due to a variety of infectious and non-infectious processes. We are presenting a case of a 59-year-old female with acute viral pericarditis due to a co-infection of coxsackie A and B virus, managed with pericardiocentesis, NSAIDs, colchicine, and steroids. Diagnosis of pericarditis is based on clinical manifestation and ECG findings; however, aetiology is still challenging.

Audience Take Away:

- We intent to create awareness among clinicians about coxsackie virus being the culprit of the disease and should always be in the differential diagnosis.
- Develop the skills to evaluate, diagnose and manage patients with pericarditis due to coinfection of coxsackie A and B.

Biography:

Dr. Mailing Flores Chang, Studied Medicine at Universidad de El Salvador in El Salvador, and graduated as MD in 2017. She then decided to continue her studies at USA and started a residency program in Internal Medicine at SBH Health System, currently working there as a PGY-3 and chief of residents.

**Francesca MT Leone^{*1,2}, Azar Hussain², Rachel Anderson³, Mahmoud Loubani¹**¹Castle Hill Hospital, Cottingham, East Yorkshire, UK²Hull York Medical School, Hull, East Yorkshire, UK³University of Hull, Hull, East Yorkshire, UK**Pilot study: Patients undergoing Coronary Artery Bypass Graft (CABG) surgery after a heart attack have symptoms of post-traumatic stress disorder, anxiety and depression**

Introduction: Those admitted for Coronary Artery Bypass Grafts (CABG) after a Myocardial Infarction (MI) are at particular risk of developing a mental health condition. Cardiac disease is associated with symptoms of Post-Traumatic Stress Disorder (PTSD) in up to 38% of patients. After an MI 15-30% of patients will develop symptoms of depression. Studies show that poor mental health contributes to increased length of hospital stay, poor wound healing, cardiac morbidity and mortality among other post-operative complications. It is currently unknown whether elective patients or those on the urgent pathway are at an increased risk of developing symptoms of mental ill-health following CABG.

Method: We investigated the baseline mental health status of patients undergoing CABG in a tertiary center between February and May 2022. Patients with severe acute mental health conditions, a history of substance misuse, concurrent cancer diagnosis, those with a left ventricular systolic function of <50% or an abbreviated mental state test of <7 were excluded. We employed the Hospital Anxiety and Depression Scale (HADS), which has previously been found to be an accurate psychometric tool in cardiac populations. We also used the Patient Health Questionnaire 9 (PHQ-9) to look for other depressive symptoms not covered by the HADS, such as suicidal ideation. For those who had a previous heart attack we utilized the Impact of Events Scale- Revised (IES-R) as a measure of symptoms of PTSD.

Results: We examined 24 patients on the day before their operation (elective = 15, urgent = 9). 33% of elective patients and 44% of urgent patients reached threshold for either borderline case or case status or anxiety as measured by the HADS though this was not statistically significant between operative groups ($p=0.206$). 44% of urgent patients met diagnostic criteria for depression using the PHQ-9 in comparison to 0.06% of the elective patients ($p=0.027$). Two patients (1 male elective, 1 female urgent) expressed suicidal ideation or self-harm on the PHQ-9, were assessed and managed accordingly. Gender and previous mental health history was not found to be a significant factor in those who displayed signs of mental ill-health pre-operatively. Of the 10 patients who had previous heart attacks, 2 participants (1 male elective, 1 male urgent) demonstrated clinical concern for PTSD but not case status. 7 of the 10 patients demonstrated one or more of avoidant, hyperarousal or intrusive symptoms based on the subscales of the IES-R.

Conclusion: Our preliminary findings demonstrate that patients about to undergo coronary artery bypass grafts have high levels of mental ill-health. Those on the urgent pathway have higher levels of anxiety and depression than electives which will likely reach statistical significance in a larger sample. Our further work on this study will obtain longitudinal data to observe how these parameters change over the post-operative period to examine the impact of surgery itself. We intend to explore how psychological prehabilitation might play a role in these populations.

Audience Take Away:

- Mental health of cardiac surgical patients is an under-reported issue necessitating further research
- It is interesting to note that some subjects reach the threshold for clinical concern for depression, anxiety and some demonstrate PTSD after having had an MI, indicating a role for psychological support in the immediate aftermath of a cardiac event
- This research could uncover potential avenues for a more patient-centred holistic approach to cardiac surgery, pre-habilitation and the post-operative recovery period

Biography:

Dr Francesca MT Leone is a Clinical Research Fellow in the Department of Cardiothoracic Surgery, Castle Hill Hospital United Kingdom. She is currently enrolled at Hull York Medical School and completing work for her doctoral thesis. She completed her MBChB at the University of Leicester in 2019 where she also completed an intercalated bachelor's degree in Medical Research with first class honors.



Nikita Bastin*, Helene Chesnais, Lauren Brodsky, Sofia Miguez, Daniel C. Kargilis, Anita Kalluri, Ashley Terry, Chamith S. Rajapakse

University of Pennsylvania, Philadelphia, PA, USA

Cardiovascular risk in prostate cancer patients

Cardiovascular disease is a leading cause of mortality in prostate cancer patients¹. Prostate cancer patients receiving Androgen Deprivation Therapy (ADT), a standard treatment course for this population, are at higher risk for cardiovascular disease than patients whose treatment plan does not include ADT. Moreover, prostate cancer patients often experience bone metastases, culminating in bone destruction through heightened osteoclast activity. In addition, ADT further contributes to bone mineral density loss. Given the related processes of decalcification in bone and calcification in the heart, elucidating the relationship between cardiovascular and spinal health in prostate cancer patients is of great interest. The bone-vascular axis, underlying the relationship between bone and heart, in prostate cancer patients is not well-understood. Prostate-cancer specific indicators of cardiovascular risk, as well as interrelated cardiovascular and osseous risk, are necessary in this population. Patients with prostate cancer routinely undergo 18-F Sodium Fluoride Positron Emission Tomography with Computed Tomography ([18F]-NaF PET/CT) scans to monitor metastatic bone disease. Metabolism in healthy and metastatic bone, as well as cardiovascular calcification, can be measured through [18F]-NaF PET/CT via Standard Uptake Values (SUV). The purpose of this study was to use [18F]-NaF PET/CT opportunistically to elucidate potential relationships between bone and heart in prostate cancer patients. The spine was chosen as a region of interest for bone metabolism as it is a common osteoporotic fracture site. Further, it tends to have uniform radiotracer uptake across patients due to its high blood perfusion, making it an ideal point of comparison. The study retrospectively identified 112 patients with a history of prostate cancer who had full-body [18F]NaF-PET/CT scans available. The standard uptake values (SUVmean and SUVmax) of each vertebra from C2 to S1, as well as the heart, were determined using a PET/CT image processor (Fiji PET/CT Viewer Plug-in, Beth Israel) (Image 1, 2). SUVmax and SUVmean measured bone and heart metabolism. Hounsfield Units (HU) served as a measure of bone mineral density. Linear correlations were used to assess the relationships between spinal metabolism and heart metabolism, as well as spinal bone mineral density and heart metabolism. A multiple regression analysis was also used to determine the effect of radiotracer dose on the aforementioned relationships. Our study reports that spine SUVmax positively correlates with heart SUVmax. Elevated myocardial uptake has been associated with cardiovascular inflammation. In addition, cancer is reported to be associated with the development of coronary artery calcification, even after accounting for atherosclerotic risk factors; such calcification can often manifest in heightened cardiovascular metabolism. Furthermore, when patients have higher spinal metabolism, it is usually an indication of disease or poor health profile. Our study further reports that spine HU negatively correlates with heart SUVmean. Vascular calcification is frequently accompanied by bone demineralization, which may explain this negative correlation.

Audience Take Away:

- The audience will learn how prostate cancer patients are at heightened cardiovascular and osseous risk and how these processes may be interrelated
- Our audience will further understand how [18F]-NaF PET/CT can serve as a predictive tool for opportunistic risk screening in this population and can illuminate shared disease processes between heart and bone
- Our findings will help physicians treat cardiovascular complications of metastatic prostate cancer and prostate cancer treatment, particularly ADT
- Faculty can use this research to further investigate the mechanistic relationships between cancer and heart metabolism, between heart metabolism and osseous metabolism, and between heart metabolism and bone mineral density

Biography:

Nikita Bastin studied Biology and English at the University of Pennsylvania and graduated with a BA in May, 2021. Her Biology Honors Thesis focused on cardiovascular risk assessment in prostate cancer patients. She then joined a research group at the University of California, San Francisco, studying breast cancer.

CARDIOMERSION

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CARDIOLOGY WORLD CONFERENCE

14-15 SEPT



Deepak Kumar Satsangi

Former Emeritus Professor & Director Professor, Head of CTVS at G.B Pant Institute of Medical Education & Research and M.A.M.C Delhi University

Homografts in cardiac surgery

Homograft Nature Best Gift To The Mankind: Homograft are available independent as there is no limitation on supply and they are available free of cost, naturally designed and are best heart valve substitute which are most durable and have normal hemodynamic. They also have freedom from thrombosis and do not need anticoagulation therefore patient is free from complications related to anticoagulation such as stuck valve, hemorrhage etc. Further they offer resistance to infection and can be implanted even in the presence of endocarditis. They offer no resistance to normal physiological flows and free from hemolytic. They have everlasting physical and geometrical factors and can be perfectly inserted in the normal anatomical site. They close promptly in less than 30 second and do not have inherent regurgitation which is common with mechanical valve. They are also free from annoying valve generated sound as common with mechanical valve such as ball & cage valve and disc valve moreover they can also easily be permanently fixed as in Ross -II procedure and can be technically easy.

Uses of homograft: Homograft is commonly used for replacement of aortic, pulmonary, mitral & tricuspid valve and aortic root replacement such as Bentall procedure. They are excellent for repair of cusps of the aortic, pulmonary, mitral and tricuspid valve. They are also used for reconstruction of R.V. outflow tract in Ross I & ROSS-II procedure in adults as well as pediatric patent. They are excellent and extremely useful material in repair & reconstructive procedure in congenital heart surgery such as Tetralogy of fallow, pulmonary arteries, Trans position of great arteries (Rastelli's procedure), Truncus arteriosus, Double outlet RT Ventricle, univentricular heart, (extra cardiac conduit, R.A to R.V. conduit), Truncus arteriosus, Aortic atresia. They are excellent natural material for repair & replacement procedure in vascular operations such as, coarctation of aorta, replacement of ascending aorta, arch of aorta, Descending, thoracic, thoracoabdominal aorta, replacement of aortic bifurcation, repair of aortic branches such as innominate, carotid, subclavian, femoral artery etc.

Audience Take Away:

- Various uses of homograft in Cardiac Surgery
- How to procure homograft valves
- How to establish a homograft valve bank

Biography:

Retired as Professor Emeritus (H.A.G Grade of central health services of Govt. of India, eligible for the post of additional director General) Director professor & Head of the department of cardiothoracic & vascular surgery GIPMER and Associated Maulana Azad Medical College, University of Delhi. MBBS, 1974 KGMU Lucknow, MS (General Surgery) 1978, KGMU Lucknow, M.Ch (CTVS) 1982, National board of examination Delhi, Dr. Albert Starr Ahmad fellow, Portland, USA-1991. Starr- Ahmad fellow with Dr. Albert Starr at St Vincent hospital, Portland US visiting fellow : University of Alabama, USA, Boston Children Hospital, USA, Texas Heart Institute, USA Southampton General Hospital, UK, Birmingham Children Hospital UK. President Indian Association of Cardiothoracic Surgeons-2008, senior vice president Indian Association of Cardiothoracic Surgeons-2007, Junior vice president Indian Association of Cardiothoracic Surgeons-2006. 37 years of total experience. 30 years as Director Professor, Professor, Associate Professor and Asst. Professor of Cardiothoracic and Vascular Surgery at G.B.Pant Hospital and Associated Maulana Azad Medical College, University of Delhi.



Deepak Puri

Cardiovascular Thoracic surgery, Max Super Specialty hospital, Mohali, Punjab, India

Integrated approach improves the outcome of comprehensive management of cardiovascular and thoracic patients even during COVID pandemic

Purpose: Heart Team Approach has benefited management of Cardiovascular patients for more than a decade now. We adapted Integrated for the Comprehensive management of Cardiovascular and Thoracic surgery patients from 2011. However, the virtues of this approach were tested to the fullest extent during Covid Pandemic when patients presented late and had higher comorbidities as well as complications on arrival. We present our experience of adopting the Integrated approach for complete management of such patients during Covid Pandemic.

Patients and methods: Since the onset of the First wave of the COVID Pandemic in February 2020 we admitted 488 patients after rapid screening for COVID antigen followed by RT PCR. Any patient who tested positive was shifted to COVID ward and Cardiovascular Intervention was postponed till 2 weeks after recovery from Covid. Among these 302 underwent Off Pump Coronary artery bypass, 2 ASD closure in severe PAH, 1 atrial myxoma excision in patient with CVA, 67 had VATS, 5 had peripheral arterial bypass, 4 had Endovascular repair, 4 had mediastinal tumour removal by Mini thoracotomy, 2 complicated Giant Bronchogenic cyst (one cervico - mediastinal Redo, other infracarinal in post-PTCA patient), Segmental resection for pulmonary Aspergilloma (2) and for pulmonary mucormycosis (2). Apart from these there was 1 EVAR and 1 EVLT 1, RFA 1 while 36 were referred for PTCA and 66 had minimally invasive procedures/ conservative management. COVID guidelines were strictly followed along with strict written protocols for Comprehensive management of patients. Prompt other speciality consultation were sought whenever indicated. Meticulous Physiotherapy, as well as dietary cover, was provided preoperative as well as postoperative in ICU as well as in Rehabilitation center. All patients were regularly followed up in OPD and homecare was provided whenever indicated. Prompt round-the-clock Video consultations were provided to facilitate diagnosis and management when rapid transportation to hospital was not possible.

Result: The postoperative recovery was smooth and uneventful in all except 5 patients with average length of stay post-surgery 3.2 days. Postoperative mortality were 2 (1 had respiratory failure in post-MI 86 year female with Preoperative LVF, other had Preoperative multiple MI with LVF went into Multiorgan failure).

Conclusion: Although the patients presented late with more comorbidities and complications, the Integrated approach was beneficial in Comprehensive management by reducing further morbidity and mortality despite higher Preoperative risk.

Benefits: The audience will learn how efficient Team Approach and meticulous guidelines improve management of patients who present late to hospital with numerous comorbidities during Covid Pandemic. This will further help the audience in planning management of their patients so that complete cost-effective benefits can be effectively passed on during the testing times.

Biography:

Deepak Puri is Founder Chairman of Cardiomersion, a global promoting integrated approach to comprehensive cardiac care. He has keen interest in Off Pump Coronary Revascularisation, minimally invasive cardiac surgery and regenerative therapy with 75 publications in reputed national and International Journals including a chapter in a book. Having presented more than 100 papers in conferences across the globe, he been invited faculty in several International conferences and organized more than 200 workshops as well as several International Conferences promoting an integrated approach, innovative techniques, promoting new technologies and exchanging skills with experts across the globe. He has worked as assistant professor in Post Graduate Institute of Medical Education and Research Chandigarh, Additional Director CTVS at Fortis Healthcare, Director CTVS at Max Healthcare and has been visiting surgeon at University of Maryland Baltimore, Swedish hospital Seattle as well as Leipzig Heart Center Germany.



Somya Puri

MM Medical College, India

Integrated approach for management of complicated cardiovascular and thoracic cases

Introduction: An integrated approach towards managing a patient or inter speciality co-ordinated approach is characterized by a high level of collaboration and communication among various healthcare professionals in pursuance of complete management of each patient. It involves the sharing of information among team members related to patient care and the establishment of a comprehensive treatment plan to address the medical, psychological and social needs of the patient. The interprofessional health care team includes a diverse group of members (e.g., physicians, nurses, psychologists and other health professionals), depending on the needs of the patient. This not only improved the patient outcome but also contributed to patient satisfaction, quality of care and lowered complication rate along with reduced overall healthcare costs, especially during the COVID pandemic. In this presentation, the comprehensive management of some complicated cardiovascular and thoracic cases will be discussed to elucidate the importance and role of integrated approach.

Patient and methods: These complicated cases include, patients with ACS + DM + Nephropathy + COPD + CVA/ Parkinsonism + Polyarthritis with very high uro-score (10-20), post COVID mucormycosis/ aspergilloma/ pulmonary cavitory lesions + BPF, CAD + Infracarinal bronchogenic cyst adherent to left atrium and cervico-mediastinal giant bronchogenic cyst for redo surgery, post covid left pulmonary AVM as well as migrating aspirated sewing machine needle retrieved with hybrid bronchoscopy + VATS. All patients had COVID rapid screening prior to admission followed by RTPCR. All coronary revascularisations were performed off pump and thoracic procedures were performed by single port VATS approach. Timely cross consultations of various specialities like endocrinology, pulmonology, nephrology were sought and physiotherapist as well as dietician were actively involved pre-operatively as well as post-operatively in ICU, rehabilitation center, follow up opd and home care.

Result: All the patients had successful interventions with integrated approach. Their hospital stay was uneventful and short (3-5 days). The patients are on regular follow up and recovered well without any delayed complications.

Conclusion: Integrated approach helps in improving outcome of patients with several co-morbidities and complications. This can be successfully adopted during COVID pandemic to make cardiovascular and thoracic procedures safe.

Audience Take Away:

- The audience will learn the importance of involving team approach at each step in the comprehensive management of the patients with several co-morbidities and complications
- This knowledge will enhance the efficiency of the audience and not only improve outcome but will also reduce complication rate and cost

Biography:

Dr. Somya Puri has completed her MBBS from MM MEDICAL COLLEGE AND HOSPITAL, Solan, India in March 2022. Presently she is working as Medical Officer co-ordinator of young forum, Cardiomersion, India. She has two publications and completed one ICMR funded research project. She has also won 1st prize in poster presentation in a CME on suicide "Creating Hope Through Action". She has presented a paper at the "International Heart Conference" held in Singapore in 2018 and has moderated one session each at international heart conferences in Singapore and Dubai in 2018 and 2015 respectively. She has also attended international heart conferences held in Japan in the years 2013 and 2014.



Nidhi Puri

Additional Professor & HOD, Anatomy, All India Institute of Medical Sciences, Bilaspur HP, India

Identification and impact of hereditary risk factors for cardiovascular diseases

Cardiovascular diseases are the most common cause of mortality worldwide. Among these, Coronary Artery Disease (CAD) and stroke are leading causes of mortality & loss of Disability-Adjusted Life Years (DALYs) globally. In contrast to developed countries, where mortality from CHD and stroke is declining due to aggressive preventive measures, it is increasing in developing countries. It is increasing in epidemic proportions in India. Thus CAD risks can be modifiable and nonmodifiable. Suitable preventive strategies are required to combat this epidemic. Preventive strategies are dependent on the early identification of the risk of developing coronary artery disease. Non-modifiable factors like age, sex, family history and ethnicity are responsible for 63% to 80% of prognostic performance, while modifiable risk factors contributed only modestly. Patients with a family history of premature cardiac disease younger than 50 years of age have an increased CAD mortality risk. Various tools can be used to measure hereditary /Non-modifiable risk of CAD in an individual which can be done by doing community surveys to identify those ethnic groups which are at high risk, calculating genetic risk score in both genders, the 2D:4D ratio and measuring C- Reactive Proteins (CRP). In a survey done by us, it was found that hereditary risk was more prevalent among Baniyas from northwest India. High 2D: 4D ratio reflects exposure to high prenatal testosterone exposure leading to deranged steroidogenesis leading to vasoconstriction in adult life. It was not only found to be higher among patients with CAD but also a predictor of CAD in the control group in another study done by the author. Whereas CRP is a measure of inflammatory response in the body but is also an indicator of low inflammatory response underlying atherosclerotic change in the vessel wall. If physicians were able to quantify the “genetic burden” of risk carried by a patient, then pre-symptomatic primary prevention of CAD could be initiated early in life. Acquisition of patient DNA for genotyping is a quick and relatively non-invasive procedure. Patient DNA can be obtained from numerous sources, however, the collection of whole blood fits most easily into clinical laboratory settings, as an adjunct to other physician-ordered blood tests. Once DNA is isolated, genotyping can be accomplished by a variety of techniques for both SNPs and CNPs. Once validated genotypes are obtained, they can be integrated into CAD risk prediction algorithms as independent categorical variables or a genotype risk score.

Audience Take Away:

- Identification of nonmodifiable or hereditary risks will help in developing strategies for primordial and primary prevention so as to delay and reduce morbidity and mortality caused by coronary artery disease

Biography:

Dr Nidhi Puri is working as Professor (Additional) in Anatomy at AIIMS Bilaspur (HP), India. She has 28 years of teaching experience, 30 research publications in national and international journals, a Chapter in an edited book, and Supervised 17 Postgraduate theses, 5 projects related to the assessment of the risk of CAD among young population of North-West India. She is Member of national advisory board of North states anatomists journal Member of National advisory board of IB Singh's text book of Anatomy. She is Founder Executive Member of Cardiomersion and office bearer & Life member of ASI, SOCA, NCAS, IMA. she has also received travel grants for oral presentation international conferences.



Amitabh Satsangi*, Pradeep Ramakrishna, Milind Hote, Sachin Talwar, Palleti Rajshekhar, Shiv Kumar Choudhary

Department of CTVS, AIIMS New Delhi, India

Clinical and radiological features of type a aortic dissection: A retrospective observational study from tertiary care Indian centre

Introduction: As the literature lacks reports from Indian subcontinent, the present study was undertaken to understand Indian scenario at initial presentation of Type A Aortic Dissection (TAAD).

Materials and method: Records of 162 patients operated for TAAD from June 2014 to June 2019 were analysed about presentation patterns, clinical manifestations, and radiological features.

Results: The mean age was 43.3 ± 13.49 years (range 15-78), and 131 were male. 146 patients had acute, and 16 had chronic TAAD. Risk factors included hypertension (44.4%), smoking (27.8%), Marfan syndrome (27.8%), bicuspid aortic valve (8.6%), and ascending aortic/root dilatation (6.1%). Chest pain was the commonest (88.9%) presenting symptom, followed by palpitations in 26.5 %, dyspnoea in 42 %, and syncope in 13.6 % patients. Seven patients had cerebrovascular accident. On third of patients reported within 24 hours of the onset of pain, 45.6 % patients between 2 days to 14 days, and 11.1% patients reported after 14 days. 41.4 % patients had initial systolic blood pressures of more than 140 mmHg. Four patients had renal malperfusion, and 23 had lower limb ischemia. Chest radiography showed mediastinal widening in 88.8 % patients. Transthoracic echocardiography identified dissection flap in 81.4 % patients. Severe aortic regurgitation was present in 65.2% patients. The mean aorta diameter was 50.6 ± 11.9 mm (range 28-84 mm) and 54.5 ± 15.8 mm (range 26-100 mm) at the sinus level and beyond the sino-tubular junction.

Conclusion: Indian patients were younger, predominantly male, and had lower prevalence of hypertension and higher prevalence of Marfan syndrome. Only one third patients reached to us in first 24 hours. Aortic diameter was less than 55 mm in more than half of our patients.

Audience Take Away:

- Demographics of type A aortic dissection in Indian patients
- Clinical and radiological features of Type A aortic Dissection
- Early detection of type A aortic detection

Biography:

Dr Amitabh Satsangi did his MBBS from DY Patil Medical School in 2014, MS (Gen Surgery) From GSVM Medical college in 2018 with Honours, MCh Cardiovascular and thoracic surgery from AIIMS New Delhi with first rank. Selected as Thoracic Surgery Foundation SAHA scholar in 2020. Has published many articles in various national and international journals.



Sumanth.R*, A.K.Bisoi, Sandeep chouhan, Ramesh Menon, Ramakrishnan

AIIMS, India

Long term fate of neoaorta in post arterial switch operation patients

Objectives: To assess the prevalence of Aortic root enlargement and severity of Aortic regurgitation in post ASO patients, starting from 5 years postop, by echocardiography.

Methodology: All children who had undergone primary ASO with or without integrated ECMO support, operated upon by a single surgeon at our center and completed at least 5 years of follow up were included in the study. Clinical workup and Echocardiographic assessment was done by the paediatric cardiologist.

Results: A total of 35 patients were assessed during the study period. Boys (n=32, 91%), girls (n=3, 8.5%). Median age of the patients at follow up was 10 years (range-5-13years). The diagnosis at presentation was TGA, Intact ventricular septum, in 31 patients (88.5%), TGA,VSD in the remaining 4 patients(11.5%).Four patients (11.4%) had moderate AR, 10 pts (28.57%) had mild AR and 21 patients (60%) had no or trivial AR. LV dimensions in these 4 patients were not significantly dilated.

Conclusion: In terms of NeoAortic root, except the annular size there was no difference in the growth and size of the Aortic root in two groups of children with or without moderate AR. However, this regurgitation is NOT significant in terms of its impact on the LV End Diastolic Dimension. The "Aortic Root" in a normal heart and the NeoAortic Root after ASO in TGA are both embryologically derivatives of the LV outflow orifice and its valve apparatus. Hence an early appropriate repair (ASO in TGA) results in a "normally" situated (anatomical relationship to the fibrous trigone) competent Aortic Valve. This study shows us about the postoperative status of the patients who have undergone arterial switch operation. The key takeaways from this study are that, trap door technique used in ASO does not induce sinus distortion and cause significant postop aortic regurgitation, contrary to other studies, our study population does not seem to have developed significant aortic root enlargement with or without significant AR.

Biography:

He studied MBBS from Adichunchangiri institute of medical sciences (2008-2014), pursued Master of surgery from Bangalore medical college and research institute (2015-2018). He did my master of chirurgie in CTVS from All india institute of medical sciences (2018-2021).



Surabhi Puri

Centre for Community Medicine, All India Institute of Medical Sciences,
New Delhi, India

Risk assessment tools for primary prevention of cardiovascular diseases

Introduction: Cardiovascular Disease (CVD) stands at the top of the list of causes of death worldwide. With the epidemiological transition in India, the prevalence of non-communicable diseases, including CVDs, is on the rise. A quarter of the deaths occurring in India can be attributed to CVDs. CVD develops due to the accumulation of damage by an increase in the duration or number of risk factors in an individual. Identification and early interventions to reduce this damage are crucial for the prevention of CVDs. The study aims to discuss the role of assessment of the risk of developing CVDs in an individual for primary prevention of CVDs.

Methods: Literature was reviewed for CVD risk assessment approach for primary prevention of CVDs. The tools available for assessment of the risk of development of CVDs in an individual were summarized and a comparison was drawn amongst the various tools available for different category groups.

Results: CVD risk prediction approach facilitates the identification of high-risk individuals to target appropriate primary prevention interventions. Numerous risk prediction tools are available for different geographical regions, like – Framingham Risk Score, Systematic Coronary Risk Evaluation, American Heart Association (AHA) Atherosclerotic CVD risk estimator, and WHO risk prediction charts. WHO HEARTS package for management of CVDs in Primary Healthcare recommends the use of WHO Risk Prediction charts, with an advantageous option of non-laboratory based prediction charts for use at primary level with limited laboratory services. Objective color-coded prediction charts facilitate the identification of major drivers of increased risk in the individual, aid CVD risk-based management (start of statin therapy), and enhance risk perception of the individuals.

Conclusion: CVD risk assessment tools are safe, easy to use, and fairly efficacious with no additional incurred cost. Assessment of the risk of developing CVDs in an individual enables the health system to prioritize interventions for primary prevention of CVDs in a resource-limited setting like India.

Audience Take Away:

- The audience will be acquainted to use of risk prediction approach for primary prevention of CVDs. They will be informed about the tools available for risk prediction and how to use them. This would help in risk-based management of individuals for primary prevention of CVDs

Biography:

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



Chaitanya gupta

Brij Healthcare, India

SGLT2 inhibitors in heart failure

Sodium–Glucose Cotransporter 2 (SGLT2) inhibitors reduce the composite of Heart Failure (HF) hospitalizations or cardiovascular mortality among patients with HF. The composite of cardiovascular mortality, HF hospitalizations, or urgent visits for HF was significantly reduced with SGLT2 inhibitors in all the following subgroups: male, female, age < 65, age ≥ 65, race – Black and White, Estimated Glomerular Filtration Rate (eGFR) <60, eGFR ≥60, New York Heart Association (NYHA) class II, NYHA ≥III, and HF with preserved ejection fraction. In patients with HF, SGLT2 inhibitors significantly reduce all-cause and cardiovascular mortality compared with placebo. In addition, the composite of cardiovascular mortality or HF hospitalizations/urgent visits is reduced with SGLT2 inhibitors across subgroups of sex, age, race, eGFR, HF functional class, and ejection fraction. Diabetes mellitus (DM) is a well-established risk factor for cardiovascular diseases, including Heart Failure (HF). Until recently, there were no HF therapies directed at glucose metabolism. SGLT2 are major transport proteins responsible for reabsorption of glucose in the kidneys. Landmark cardiovascular outcome trials have shown a benefit of SGLT2 inhibitors over placebo in the composite endpoint of cardiovascular mortality or HF hospitalizations.

Biography:

MBBS from DY PATIL medical college, Navi Mumbai (2008-2014), MD internal medicine from SRM medical college, Uttar Pradesh (2015-2018). Diploma in diabetes and critical care.



Neha Chandrakar^{1*}, Vipul Bhasin², Vishu Bhasin²

¹Consultant, Eye department, Chandiwalla Hospital, New Delhi, Delhi, India

²Consultant & Director, Dr P Bhasin Pathlabs, New Delhi, Delhi, India

The possibility of ape1/ref-1 as a novel biomarker in the detection of coronary Artery disease

Coronary Artery Disease, is the leading cause of death globally resulting in over 7 million deaths. Apurinic/ Cypyrimidinic endonuclease 1/redox effector factor 1 (APE1/Ref-1) is a multifunctional protein that is mainly located in the nucleus. APE1 is involved in the base excision repair pathway, and Ref-1 acts as a reductive activator of many transcription factors in controlling different cellular process such as apoptosis, inflammation, proliferation, angiogenesis, and is involved in survival pathways. The study aimed to investigate the possibility of APE1/Ref-1 as a novel biomarker in the detection of Coronary Artery Disease in Indian population, and to correlate the levels of APE1/Ref-1, NT-proBNP and Lipid Profile in CAD patients. The study included 100 subjects divided into two groups of cases and controls. The Case group included Fifty patients diagnosed of Coronary Artery Disease based on Clinical findings with Electrocardiography, Biochemical Markers, Echocardiography and Angiogram (wherever possible) attending the hospital OPD. Fifty age and gender matched healthy individuals constituted the control group. Quantitative variables are expressed as mean \pm sd and compared between groups using Unpaired t-test/Mann-Whitney test. Qualitative variables are expressed as frequencies/percentages and compared using Chi-square/Fisher's Exact test. The mean APE 1 in case group was 3.77 ± 1.03 whereas in control group was 1.20 ± 0.7 , with p-value of <0.001 . A p value of <0.05 implies statistically significant difference in mean APE1 between case and control group. Our findings suggest that APE1/Ref-1 has a positive correlation with in patients of CAD. The study also suggest a positive correlation between abnormal Lipid Profile, raised NT-proBNP, and APE1/Ref-1, which further supports that APE1/Ref-1 can in-turn become a positive biomarker in diagnosis and prognosis of CAD.

Audience Take Away:

- Knowledge of APE1/Ref-1, a multifunctional protein
- Open horizon for more in-depth research for development of a new novel bio-marker for CAD
- Knowing the correlation of APE1/Ref-1, NT-proBNP and Lipid Profile in Coronary Artery Disease patients

Biography:

Dr Neha Chandrakar graduated MBBS from Dr D Y Patil Medical College, Mumbai, India in 2013. She completed her post graduation in the field of Ophthalmology from Venu Eye Institute & Research Centre, New delhi in 2017. She then worked as a Senior Resident at All India Institute of Medical Sciences (AIIMS), Raipur till 2019. She received her fellowship degree in the sub-speciality of Oculoplasty in 2020. Currently, she is working as a Consultant at Chandiwalla Hospital, New Delhi, India. She has published more than 10 research articles and case reports in various national and International journals.



Deepak Puri¹, Sushil Sehgal^{2*}

Global chairman of Cardiomersion, Director CTVS Max hospital Mohali India , Cardiomersion, India

Benefits of guideline directed physical therapy in management of cardiovascular disease

The goal of this presentation is to tell about the benefits of protocols we have made to be followed for the Comprehensive management of patients with cardiovascular disease during Pre-operative , Post-operative ICU stay as well as In rehabilitation center or for those patients who go to home with uneventful recovery after 3rd or 4th day of surgery. We also provide home care facilities for those patients who do not require to be admitted in Rehabilitation center yet need physiotherapy supervision at home. We categorize the patient according to a scoring system which is called Cardiomersion activity score designed by us .In this scoring we check how much activities patient performs independently and for which activities patient needs support or assistance. If patient's scoring less than 16 we advise the patients to go to rehabilitation center. Also when patients come to us for first follow up after 1 week and subsequently after 1 month , 3 month, 6 months, we assess patient then advise physical activity according to their physical and mental conditions. We follow the guidelines of AHA but modify them from time to time according to patients needs .We have seen that those patients who followed our instructions and protocols had recovery which was several times faster and their outcomes were much better as compared to those who did not do adequate physical activity after Cardiovascular and thoracic surgery.

Conclusion: Physiotherapy forms an integral part of care of patients with Cardiovascular and other lifestyle disease at all stages including primordial and primary prevention as well as Rehabilitation after interventions followed by life long secondary prevention. Strict adherence to protocols based guidelines improve the outcome and reduce complications thus reducing overall cost of treatment.

Biography:

Dr. Sushil, physiotherapist, have done my bachelor's degree in physiotherapy from Chandigarh University. Recently working in Cardiomersion team under Dr. Deepak puri (CTVS director) , he have been interested in Research for new physical therapy techniques which will give benefits to patients by resulting in better outcomes so that patients can improve their quality of life and prevent recurrence or further progression.



Shingarika Guleria

BDS from Himachal Dental College, Medical Aesthetician Belleza-House of Miracles by Shindsky, Sundernagar and Chandigarh, India

Benefits, scopes of facial aesthetics and impact of cardiovascular health on aging

Facial aesthetics are cosmetic treatments may enhance your natural beauty and highlight your facial features. These treatments aim at making your skin appear pleasing by creating symmetry to the face, tightening drooping skin and fighting signs of ageing. However medical evidence proves that changes due to Aging are not just related to physical appearance. It is a reflection of the status of our physical, mental and social health especially the Cardiovascular health. Unfortunately due to our daily schedule, eating habits and environment, Our skin starts to lose its natural elastic with age, resulting in dull and dry skin. Thankfully, there are facial aesthetic treatments available that can help to rejuvenate your skin, and the best of these options are safe and non surgical. Wrinkles on the face can reduce one's self-esteem. This not only reduces our confidence, it also causes lot stress to some who are not able to accept Aging gracefully. Aging has early onset and rapid progression in some Races where atherosclerosis progresses fast. Skin problems might be embarrassing for some people. Getting facial aesthetics treatments can significantly improve their confidence in themselves but is short lasting. Aesthetics has direct relationships with physical, mental and social well being of a person. For better Results we have to ensure good Cardiovascular status of the person, better lifestyle, good physical activity and stress management. Which Comprehensive management of Ageing we can achieve better and long lasting effects and defy Aging.

Audience Take Away:

- They will learn about the importance and benefits of Aesthetics in management of Aging
- Dentists have more knowledge of oral-facial areas than other healthcare professionals as they are highly experienced with injections and they have a comprehensive understanding of facial expression dynamics and muscles. A patient can get quick and convenient treatment during a regular dental visit
- Facial aesthetics fight against the signs of ageing and give you fresh and radiant skin. Additionally, it is an ideal option for last-minute improvements before a big event
- How Aesthetics play important role in improving self-esteem, mental health. Role of Cardiovascular Health and lifestyle management will also be highlighted with emphasis of Integrated Approach for management of Aging related changes
- Safe, non- surgical and excellent Results oriented process. A process that is common among celebrities, VIP is now available for all who are concern for their appearance. It works jointly on your mental and physical health hence keeping you happy and satisfy within

Biography:

Dr Shingarika Guleria graduated BDS from Himachal Dental College, Sundernagar (H.P.), India in 2013. She then mastered in Maxillofacial Aesthetics from Walk In International Medical and Dental Centre in 2017. After working with pioneers and getting experience she started her own venture named Belleza-House of Miracles by Shindsky. It's first branch was opened in Chandigarh and then opened in Sundernagar (H.P.). She was awarded for her incredible work as a young entrepreneur by Alma and World Book of Records, London. She has won many beauty pageants and subtitles and also had the honour to be among the jury's of India's oldest Beauty Pageant named Bharat Sundari and still a part of it.



Shaurya Pratap Singh Kushwaha

Medical Officer for Mosaic Wellness, India

Coronary artery disease risk evaluation among youngsters of different communities of North India

In India, the incidence of coronary artery disease and related risk factors has risen dramatically. Coronary artery disease is a major public health concern worldwide. Anthropometric indices such as BMI, WC, WHR, and WHtR are low-cost and simple to measure and track. In many populations, these indices have been demonstrated to be predictive of disorders such as coronary artery disease, diabetes mellitus, and hypertension. A total of 400 young boys aged 18 to 25 years old from Punjab and Haryana participated in the study. With 100 subjects in each group, the subjects were separated into four endogamous groups: Punjabi Baniyaas and Jatts Sikhs, Haryana Baniyaas and Jaats. Individual patients had their anthropometric measurements, blood pressure, and lifestyle-related coronary heart disease risk factors recorded. According to the most recent guidelines, subjects were divided into three groups based on indices, blood pressure, and lifestyle-related CAD risk factors. Deranged anthropometric indices such as WC, BMI, WHR, and WHtR were more common in participants from Punjab and Haryana's Baniyas population. Punjabi Jatts Sikhs had a much higher WHtR than Haryanvi Jaats Sikhs (p value 0.048). Low physical activity, low and medium level of stress, low sun exposure, and alcohol intake were all greater in the Punjab groups, while smoking was significantly higher in the Haryanvi in the study group, and these characteristics were also more prevalent in the Punjab and Haryana Baniyas communities. Alcohol consumption was greater among Punjabi Jatts Sikh and Haryanvi Jaats, although Punjabi Jatts Sikh consumption was much higher. Smoking was more prevalent in Haryana's Jaats community than in Punjab's Baniyas and Jatts Sikh populations. Punjabi groups, as well as the Baniyas community of Punjab and Haryana, had higher junk food intake, salt intake, sugar intake, and fat intake. Aside from that, fibre, fruits and vegetables, and whole grains were consumed less frequently. Positive genetic history of coronary artery disease, hypertension, diabetes mellitus, stroke, and obesity was found to be more common in the Punjab and Haryana Baniyas communities. In Punjab's Jatts Sikh community, maternal family history of obesity was more common. Pre-hypertension was shown to be more common in Punjabi communities and the Baniyas population of Punjab and Haryana. There was no variation in Ankle-Brachial Index between the Punjab and Haryana study populations, hence it could not be linked to any other risk factor for coronary artery disease.

Conclusion: Deranged anthropometric indices were greater in the Baniya community, according to the findings.

- The Baniya community had a higher rate of low physical activity (59 percent).
- In the Baniya community, low and medium levels of stress were much greater.
- Punjabi Jatts Sikhs had the highest alcohol use at 68 percent.
- Haryanvi Jaats smoked the most (25%), whereas Punjabi Jatts Sikhs smoked the least (4%).
- In the Baniya community, low sun exposure (7%) was more common.
- The Baniya community had a considerably higher rate of faulty diet and junk food consumption (87.5%).
- Prehypertension was found to be 33% greater in the Baniya community.
- 74.25 percent of the study participants had a family history of coronary artery disease, hypertension, diabetes, stroke, or obesity, with 86.5 percent having a higher prevalence in the Baniya population.

Benefits: This study helps in identifying Coronary artery disease risk among different communities in youngsters and will help in planning preventive health strategies for this region which carries highest burden of coronary artery disease in young population

It will also help audience and youngsters to identify what risk factors to look for and how to control them during primordial and primary prevention as well as Rehabilitation.

Biography:

Dr. Shaurya Pratap Kushwaha graduated from MM MEDICAL COLLEGE AND HOSPITAL, Solan, India in March 2022 and is presently working as Medical Officer for Mosaic Wellness. Apart from the publication in the International Journal of Surgery Case Reports that got him the Young Researcher Award 2022, he has two more publications and a handful other research projects he is currently involved in. He has been an active student member of ACP, AAN, ASCO, ILAE, IAOHNS and the College Ambassador for MSAI. For his humanitarian and philanthropic efforts through his own NGO- The Nayi Soch Foundation, he received the Covid-19 Warrior award by the Ex-Deputy Mayor.



Vinakshi Devi^{1*}, Deepak Puri²

¹Physician Assistant Cardiac Sciences, Max Superspecialty Hospital Mohali, Punjab, India

²Director CTVS Max Superspecialty Mohali, Global Chairman Cardiomersion, Punjab, India

Nursing care guidelines to prevent complication after cardiac and thoracic surgery

Perioperative nursing care refers to the care rendered by nursing Team during pre-operative, intra-operative and post-operative stay of patients undergoing surgery. A patient undergoes different experiences during these phases with much stress and anxiety during the hospital stay ever since onset of COVID pandemic. Cordial relationship between patient and nurses during these phases significantly improves the outcome. In pre-operative period proper history taking & physical examination plays an important role in the patients before surgery and ensures safer after surgery and rehabilitation plans. During Covid pandemic we always screen all patients for covid antigen and perform RT-PCR test before the patient gets admission in CTVS ICU. If any patient is reported positive then we transfer to Covid ward till recovery. We always use integrated approach to treat the patient that improves the patient's health status as well as outcomes after surgery. By following all covid guidelines we take care of the patients to prevent pre-op, intra-op & post-op complications by following written protocols meticulously and involving specialists from all allied specialties as and when required. During surgery all aseptic precautions using PPE judiciously when required helped eliminating infection. Plan of surgery and steps were discussed by Team one day prior and immediately before surgery with Chief surgeon and back up plans were also decided beforehand to avoid unexpected surprises. Cardiovascular & thoracic surgeries were performed without complications within stipulated time and patients were safely shifted back to ICU, handing over all details of intraoperative events to ICU nurse and Intensivist. In post-op we provided all necessary care which helps to improve the recovery of the patient day by day. Our most important duty for post op patients is to prevent further complications by early initiation of antiplatelets drugs if the patient has no further risk of bleeding, prevention of pressure sores, maintenance of all peripheral & central lines with aseptic precautions, initiation of proper nutrition early, strict nursing care, early removal of ICDs, aseptic dressing and early ambulation. Management of comorbidities and any complications included prompt involvement of intensivist and operating surgeon as well as any other concerned specialists. Pre discharge check lists were strictly followed and patients were given proper instructions for regular follow-ups. Those requiring rehabilitation or home care were handed over to proper trained Team for further care. Guidelines directed nursing care protocols with Integrated approach help in faster recovery of the patient, lowers risk of complications and improves outcome of patients undergoing Cardiovascular and Thoracic surgery.

Audience Take Away:

- Benefits of guideline directed nursing protocols for comprehensive management of patients undergoing cardiovascular and thoracic surgeries
- This knowledge will help the audience in taking care of patients at all stages including pre-operative, intra-operative and post-operative period as well as during rehabilitation and follow-up

Biography:

Vinakshi Devi completed Nursing from DR. RAJENDERA PRASAD GOVERNMENT MEDICAL COLLEGE TANDA at KANGRA HIMACHAL PRADESH and subsequently completed training as Physician Assistant in Cardiac Sciences at Max Superspecialty Hospital Mohali India. Currently working as Physician Assistant in Cardiomersion Cardiac team. She handles pre-operative and post-operative follow-up of patients as well as assists Surgical procedures and takes care of Rehabilitation also. Apart from this she is regularly involved in academics, camps and research projects.



Prabjeet Kaur Sohanpal^{1*}, Deepak Puri²

¹CTVS department, Max super speciality hospital/Member of cardiomersion, Mohali, Punjab, India

²Director of CTVS department, Max super speciality hospital, Mohali, Punjab, India

Efficacy of Mesenchymal Stem Cells in management of cardiovascular complications of Covid-19

Clinical evidence shows that a significant portion COVID-19 patients can develop complications related to cardiovascular complications spanning from Acute Myocardial Injury (AMI) to arrhythmias and exacerbation of heart failure, acute myocardial injury being the most common, possibly due to high cardio-metabolic demand thus impairing cardiac function. Over the recent years, management of AMI using stem cell therapy has been found to prevent myocardial cell apoptosis, promote local neo angiogenesis, and reduce the local inflammatory response. Employment of Mesenchymal Stem Cells (MSCs) in severely affected SARS-CoV-2 patients has reported remarkable reversal of symptoms, notably restoration of cardiac biochemical indicators to reference levels as evidenced in a pilot trial of intravenous MSC transplantation in seven COVID-19 patients by Leung Z et al. Furthermore, several in-vitro and in-vivo studies have demonstrated reduction in infarct size with improved recovery of cardiac function, reduction of fibrosis and apoptosis, stimulation of angiogenesis, decreased infiltration of macrophages and other immune cells to the injured myocardium following treatment with MSC-derived Extracellular Vesicles (EVs). Multiple studies have assessed the ability of intravascular stem cells in the treatment of heart failure and evidenced enhanced LVEF and improved ventricular remodeling parameters (LVEDV and systolic volumes). However, there are risks involved with MSC therapy including state of hypercoagulability in COVID-19 patients mandating caution with IV delivery of MSC therapeutics and need for heamtocompatibility testing for IV administration of MSCs. The stem cell therapy is currently in infancy, however early and preliminary data regarding stem cell therapy suggest promising results in patients with severe COVID-19 illness. The complications associated with COVID-19 infection necessitates a 'broad-spectrum' therapy, therefore to harness the tremendous therapeutic potential of the stem cell therapy as suggested by the results from various preclinical and clinical trials for several other diseases, there is an urgent need for further investigate the risk and benefit profile of MSC therapy.

Audience Take Away:

- The points presented could as a cue for the audience to initiate or design further research on stem cells
- The data presented provide substantial evidence that further research on stem cell therapies could revolutionize COVID-19 treatment strategies providing an effective treatment to the affected, and further reducing the burden on health care facility

Biography:

Dr. Prabjeet Sohanpal is a MBBS doctor, graduated from Christian Medical College, Punjab, India in 2019. For more than three years, she has gained valuable experience as a Senior Drug Safety Physician with a recognized clinical research organization. Additionally, to synergize her knowledge of medicine and to take calls in a clinical setting she has been working as a Resident medical officer. As a person, she is organized, thorough, research oriented with an analytical bent of mind and a quick learner. Her certifications include Advanced Cardiac Life Support (ACLS) and Basic Life Support (BLS) and she is a member of MSAI India.

Sukriti Kaushik

Psychiatrist, Cardiomersion, India

Prevention of cardiovascular co morbidities in substance dependent patients with tattoo imprints

The word “tattoo” entered the English language as Anglicized version of the Tahitian word “tatau” (“to mark”). Tattoo itself and its meaning may reflect the inner world of an individual and his/her relationship with the outside world. According to some authors, the high rates of tattoo were found among substance users. The present study has screened tattoos in two hundred male subjects with a history of substance dependence. Aim of this research work was to investigate possible symbolic association of specific tattoo patterns with type of drug dependence and significance of that particular imprint. Assessing the association and knowing about the significance of the tattoo imprints in substance dependent users can further guide specific psychotherapy techniques in opioid, tobacco, cannabis and alcohol dependent users, also it can further prevent associated cardiovascular co morbidities. Two Hundred male subjects aged between 18-55 years, who had the history of substance dependence with tattooed bodies were inspected from Shimla and the surrounding localities in India. During the interview the subjects were asked about the type of substance dependence and time since substance used, tattoo engraved, if the tattoo was engraved under intoxication and significance of that particular tattoo type. The focus was to find out any correlation between substance dependence and that specific tattoo patterns engraved on the body. The association and the significance of particular tattoo can be used as tool in psychotherapy for the prevention of associated cardiovascular comorbidities in the substance dependent users. Subjects were randomly selected and a self designed questionnaire was used. All of the patients found were males with the majority in the age group 18 to 30 years. Highest in number were opioid dependent users followed by nicotine, cannabis and alcohol users. In these users majority had the pattern of God, Shivji, Buddha, Trishool, mantra next in number was abstract pattern, thereafter in decreasing frequency were found engravings of nature, scenic beauty and animals and lastly was found engraving of their own and parent's name. According to them as lord Shiva used substance (cannabis), he was their idol, engravings of Mantra, God made them strong, peaceful, confident, close to god and faithful towards their religion. The subjects having abstract pattern emphasised that it was for fun, under peer pressure, following fashion trend and few of them had no specific reason. In others symbolic pattern of animals signified their hobby of pets, connection with them and feeling of being powerful. Those having imprints of nature and scenic beauty emphasised their liking to travel and reside in Himalayas. Few imprinted name of their parents and signified it for love and motivation to quit the substance. Engraving of their own name indicated self love and feeling of more confidence.

Conclusion:

- α) Out of two hundred males Subjects, (81%) were in the age group of 18-30 years.
- β) Majority (58%) subjects were dependent on chitta (opioid), out of them (42%) smoked chitta (opioid) and (16%) of them injected and smoked simultaneously followed by cannabis dependence in (21%), and alcohol dependence in (17%). Lastly (4%) subjects were dependent on other substances like cocaine, benzodiazepine and LSD in our study. Out of two hundred subjects (36%) were dependent on either two or more substances. Overall (66%) were dependent on tobacco along with above substances.
- χ) Majority of the subjects (89%) had tattoo marks on their upper limbs especially arms (67%) followed by hands (22%) Out of (17%) were intoxicated at the time of tattoo imprinting. Also (53%) of them were already substance dependent at the time of engraving.
- δ) (42%) had tattoo related to God and out of which subjects had tattoo of “Shiva”, “Om”, “Trishul” “Buddha”. Secondly (21%) had abstract pattern followed by (15%) of nature and scenic beauty, (14%) of animals and (8%) of them had tattoo of their parents and their own name.
- ε) Symbols of Shiva portrayed faith towards religion. They associated their substance intake with Shambho, shiva, Om and considered (lord) Shivji as their idol. According to them as lord Shiva used substance (cannabis), intake of substance made them more close to almighty and made them strong and confident. In some Buddhist mantra and lord Buddha pictures were engraved which symbolised peace for them.

- ϕ) Second in number was abstract pattern which they emphasised was for fun, under peer pressure , following fashion trend and few gave no specific reason.
- γ) The subjects who were fond of animals ,pets could connect with them more than their other friends .Some had hobby of pets.Dragons,Scorpio and Lion engraving in some made them feel more powerful.
- η) Nature and scenic beauty engraving as per them were because they were nature lovers,born in Himalayas and liked to travel.
- ι) Parents name on the body emphasised love for their parents and some stated that seeing their name gave them motivation to quit substance and their own name suggested self love and confidence.

Benefits:

- i. As majority of the age group was between 18to30 years so we need to be vigilant about psycho education of our youth about substance dependence.
- ii. Nature of the tattoo that god (Shivji),scenic beauty ,animals, parents ,abstract can further be used to assess personality of the dependent users and used as a preventative tool in cardiovascular comorbidities in intra venous drug users,alcohol ,cannabis and nicotine dependent patients.
- iii. Liking for God,love for nature ,pets can be added as a tool in psychotherapy to modify their lifestyle preventing associated risk of cardiovascular diseases,diverting there mind to productive hobbies like pets, nature loving ,spirituality and meditation and can be an be an alternative healing practise in such patients.
- iv. Further prospective studies are needed in this relatively less explored field, and we hope that the present report will help to stimulate additional research in a larger patient population.

Biography:

Dr.Sukriti has done postgraduation in the field of psychiatry from Indra Gandhi Medical College and Hospital, Shimla and is presently working as Psychiatrist. She has an experience working with Indian Defence Estates Services ,holding the charge of Deaddiction centre in Dagshai ,Himachal Pradesh. She was worked as a Consultant Neuropsychiatrist with the Government of Himachal Pradesh.she has her publications in the International as well as Indian journals. She is actively engaged in creating awareness about various aspects of mental health in the society and has received appreciation for the same.

Aditi Taneja

S.G.T. Medical College, Gurgaon, Haryana, India

Cardiac surgery and COVID-19 – Insight into peri-operative management

Health care has been seriously affected by the corona virus disease 2019 (COVID-19) pandemic with alarming effects upon conduct of cardiac surgery. The initial resource conservation strategy has to modify for handling the surging case load due to deference of routine care in the face of pandemic. The cardiac surgical practice during the lockdown period (from 25th March till 30th November 2020) at a tertiary care centre was observed. The cardiac diagnosis of the ones operated, conduct algorithm, and working policy were analyzed. Descriptive statistics was applied to calculate the percentages of different case subsets in both adult and paediatric groups. The initial phase of resource conservation has undermined the routine cardiac surgical practice. The study showed that strict adherence to management algorithm is necessary for persisting with smooth continuation of cardiac surgical practice with provision of optimum critical care. The strategic comeback against COVID-19 would urge institutional development of protocols to aid the post-surge period.

Audience Take Away:

- The aspiring doctors will get an insight into the management protocols of a tertiary care cardiac center during a pandemic
- The audience will gain knowledge on how to optimally use resources during such a time without compromising patient care
- The management protocols can be used as a blueprint by similar upcoming tertiary centers to formulate their own
- The study reinforces the fact that strict adherence to protocols is necessary for smooth continuation of surgical practices

Biography:

Dr. Aditi Taneja has completed her under-graduation (MBBS) this year from S.G.T. University, Haryana, India. She is currently interning at S.G.T. Medical College, Hospital and Research Institute, Haryana, India. She is posted at a primary urban health center where she is overseeing COVID-19 vaccinations amongst other things. She has also worked with the Govt. of Haryana as a 3rd year medical student to provide essential health care during the COVID-19 pandemic.

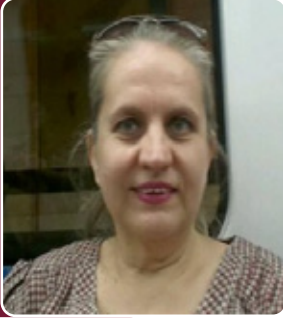
KEYNOTE FORUM

DAY 02

3RD EDITION OF

CARDIOLOGY WORLD CONFERENCE

14-15 SEPT



Senay Cetinkaya

Çukurova University, Faculty of HealthSciences, Head of Department of Pediatric Nursing

The importance of evaluation of growth and development in children in chronic diseases

Growth is the increase in body volume and mass due to the increase in cell number and size. Growth is determined in the intrauterine period by gender, intrauterine environment, intrauterine infections, maternal chronic diseases, genetic factors, chromosomal diseases, skeletal dysplasias, hormones and growth factors. Growth after birth is determined by chronic diseases of the child, genetic factors, nutrition, metabolic factors, hormones and psychosocial factors. Growth monitoring is defined as the evaluation of the child's growth at regular intervals with the help of appropriate standard growth curves, early identification of deviations from normal and taking precautions. According to the World Health Organization, the growth of every child under the age of five in developing countries should be monitored, especially in the first three years. It is defined as monitoring the growth of the child by making certain anthropometric measurements at regular intervals and processing them into standard growth curves. Anthropometry is a technique that deals with the dimensions of the human body. It is derived from the Greek words anthropo (human) and metricos (measure). This follow-up begins at birth and is routinely repeated at regular intervals throughout childhood. Since children are constantly growing and developing organisms, all kinds of factors that impair their health can slow down or stop their growth and development processes. Slow but continuous declines from the normal growth curve or plateauing of the normal growth curve indicate that the patient has a chronic disease or malnutrition that causes growth interruption.

Some inherited or acquired diseases in a healthy baby can become chronic and can negatively affect the growth and development process. Chronic disease is defined as a condition that occurs as a result of a combination of genetic, physiological, environmental and behavioral factors, usually lasting for one year or longer, requiring continuous medical intervention and limiting activities of daily living. The daily needs of children with chronic diseases may differ from their healthy peers. In addition to the characteristic findings of heart disease, secondary problems brought by the disease are of great importance in children with heart disease. The important complication seen in heart diseases is growth and developmental retardation. Growth retardation that cannot be detected in the early period causes delay in correction surgeries and even the risk of death after surgery. Children with heart disease have malabsorption due to insufficient caloric intake. This situation causes growth retardation in children. Children and adolescents with chronic diseases, biomedical or psychosocial risks need more frequent and sensitive supervision.

Early detection and early intervention of risk factors associated with Growth and Developmental Delay is the most important milestone for quality of life and ensuring that the child reaches the optimal capacity in adulthood. The treatment of the detected cause is essential in children with growth retardation. Protecting and improving child health and providing appropriate care during illness are possible with knowledge of growth and development.

Keywords: Child Health and Disease Nursing, chronic diseases, growth and development.

Audience Take Away:

- Understanding the importance of regular monitoring of growth and development in children
- Understanding what growth and development is, how it is assessed, and why nurses need to know
- To learn the importance of monitoring growth and development in children with chronic diseases

Biography:

Senay Cetinkaya has completed her PhD at Ege University. She worked as a Thoracic and Cardiovascular Surgery Intensive Care Nurse at Ege University for 8 years. She has been continuing to train undergraduate and graduate students of nursing for 34 years. In 25 years of her 34-year study period, she conducted undergraduate and graduate courses in Child Health and Disease Nursing by herself. She has been working as the head of the Pediatric Nursing Department at Çukurova University for 14 years. Senay Cetinkaya, who has 5 different medical device inventions, has 1 US, 2 European and 1 Turkish patents registered. At the same time, there are 1 German, 1 French, 2 Turkish patents applied for and being examined.

SPEAKERS

DAY 02

3RD EDITION OF

CARDIOLOGY WORLD CONFERENCE

14-15 **SEPT**

**Sajjad Rezvan^{1*}, Amirali Fallahian²**¹MD, Department of Radiology, Radiology Resident, Iran²General Physician**Circadian rhythm of blood pressure and its related factors in patients with hypertension**

Circadian rhythms are known to affect human body in various ways and blood pressure is not an exception; normally blood pressure drops during the night. Hypertension is a common treatable and controllable disease that could lead to fatal complications via different mechanisms. Having those said in mind, we aimed to determine the abnormality of circadian rhythms in hypertensive patients.

183 individuals having hypertension and over 30 years old were selected and studied on, with the data gathered from checklist and 24-hour blood pressure monitoring. Ambulatory Blood Pressure Monitoring (ABPM) was chosen because it is the best diagnostic method for hypertension considering errors in common diagnostic errors that is done by individual measurements.

Patients were divided into two categories; dipper and non-dipper. The dipper group had a reduction in blood pressure during a sleep and contrariwise. Most patients (77%) had non-dipper blood pressure pattern. Previous studies have shown the risk of developing sleep problems, metabolic syndrome, cardiovascular disease and stroke among individuals with abnormal circadian rhythm of blood pressure.

We suggest lowering of nocturnal blood pressure based on ABPM results using diuretics -either alone or in combination with other drugs; because they tend to lower night-time pressure and by that means, reducing the risk of these disorders in patients with non-dipper HTN.

Audience Take Away:

- Educate patients about normal circadian rhythm of blood pressure and associated risks
- Assess hypertensive patients for nocturnal rise in blood pressure
- Lower the nocturnal blood pressure preferably using combination drug therapy
- Diuretics are suggested for night time blood pressure control due to their role in preventing heart failure

Biography:

Dr. Rezvan studied medical at the QUM University, Iran and graduated as MD in 2018. He then entered a radiology residency. He is scheduled to receive his specialty degree in 2022. He has published more than 50 research articles in SCI(E) journals. He has published 7 academic books in other fields of Medicine.



Amna Ibrahim Al Muaini

Tawam hospital, SEHA - Abu Dhabi Health Services Co. United Arab Emirates

Prevention of drug induce cardiovascular diseases

Cardiovascular diseases are a leading cause of death all over the world that affect public health significantly. Many risk factors are associated with cardio vascular disease, however one of the emerging risk factors, that can be managed, and prevented is the drug induced one. Many drugs are contributed in cardiotoxicity that can further increase mortality & morbidity. Risk stratification, prevention, identification, and treatment of these toxicities can vastly improve patient care. Possible mechanisms for cardiotoxicity include both direct and indirect effects to the Cardio vascular system. Many chemotherapies and immunotherapy as Anthracyclines, Vascular Endothelial Growth Factor Inhibitors, BCR-ABL Kinase Inhibitors, Immune Checkpoint Inhibitors, and Ibrutinib are incorporated in different types of cardiotoxicities. On the other hand, there are other groups of drugs may be associated with developing different types of arrhythmias including supraventricular tachycardia, sinus bradycardia, atrioventricular nodal blockade, atrial fibrillation, ventricular tachycardia, and Torsade de points. Also, Blood pressure elevation can be induced by different agents like Nonsteroidal Anti-Inflammatory Drugs (NSAIDs), corticosteroids, Psychostimulants, Antidepressants and Antipsychotics drugs. Although myocardial ischemia results from an oxygen supply and demand mismatch such case may be induced with different mechanisms but it can occur acutely due to many drugs such as nonsteroidal anti-inflammatory drugs, HIV medication. Regarding to heart failure Medications known to cause or exacerbate HF are too numerous, and can exacerbate condition with different mechanisms like dexmedetomidine, non-dihydropyridine Calcium channel blockers, cilastazole, and sitagliptin. Clinical pharmacist may play a relevant role regarding prevention and mitigate the risk of cardiovascular disease through different pathways including medication review, monitoring, reconciliation, drug safety management, and patient education. This will help in developing treatment plan to monitor and prevent any cardiotoxicities.

Audience Take Away:

- To prevent to cardio toxic drug and the role of clinical pharmacist
- Will help the physician to keep in consideration while prescribe the medication

List all other benefits.

- i. CVD risk on public health.
- ii. Risk factors associated with developing CVD.
- iii. Drug induced cardiotoxicity risk.
- iv. Drug induced arrhythmias (AF, SVT, VT, Sinus brady, torsade de pointes, AV block).
- v. Drug induced heart failure.
- vi. Drug induced myocardial ischemia.
- vii. Drug induced HTN.
- viii. Drug induced hypotension
- ix. Efforts to mitigate the risk.
- x. Role of clinical pharmacy in managing & preventing drug induced cardiotoxicity.

Biography:

In 2011, Dr. Amna Al Muaini finished her studies in chemistry at the Dubai Pharmacy College in the United Arab Emirates. She completed her master's degree in clinical pharmacy in 2015. She also enrolled in a two-year ASHP-accredited residency program in 2017. She achieved her pharmacotherapy board certification in 2020 and has worked as a cardiology clinical pharmacist in a tertiary hospital since 2017.



Mohammed Ahmed, Success Oyibo*, Shankarnarayan Dalvi, Richard Cowell
Betsi Cadwaladr University Health Board, United Kingdom

Hydrocortisone induced symptomatic sinus bradycardia

Doctors use corticosteroids in the treatment of various autoimmune and acute inflammatory conditions. More specifically, hydrocortisone is used in short-term high doses for remission induction in patients with moderate to severe flares of Crohn's disease. This report describes a case of hydrocortisone-induced symptomatic sinus bradycardia, a rare side effect of high-dose steroids.

A 52-year-old female with background Crohn's disease was admitted to the hospital with severe abdominal pain, bilious vomiting and mild abdominal distension. She was diagnosed with small bowel obstruction secondary to an acute flare of Crohn's disease and treated with 100mg hydrocortisone four times daily, intravenous fluids and antiemetics. After three days of treatment, she developed palpitations, and her heart rate dropped to 28 beats per minute while other vitals remained stable. The patient was not on heart rate limiting medication, cardiovascular evaluation detected no abnormality, and she was monitored on Telemetry. We stopped her steroids, continued all other drugs, and her heart rate slowly improved over the next 24 hours without further intervention.

Clinicians need to be aware of corticosteroid-induced bradycardia, a rare, reversible and potentially life-threatening side effect of high-dose steroids. Therefore, we advocate for cardiac monitoring in patients who receive high doses steroids to enable early intervention in patients who develop such adverse effects.

Audience Take Away:

- Bradycardia is a rare side effect of high dose steroids
- Steroid induced bradycardia is reversible
- ECG or cardiac monitoring for patients receiving high dose steroids

Biography:

Dr. Success Oyibo studied Medicine and Surgery at the University of Ibadan, Nigeria and graduated in 2018 with the MBBS degree. She had her foundation training at the University College Hospital, Ibadan, Nigeria. Thereafter she relocated to the United Kingdom and joined the Cardiology Team of Wrexham Maelor Hospital, Betsi Cadwaladr University Health Board in March 2022 as a Trust grade SHO.



Shikha Jha MD^{1*}, Keval Patel²

¹Internal Medicine, Saint Peter's University Hospital/Rutgers, New Brunswick, NJ, USA

²Cardiology, Saint Peter's University Hospital/Rutgers, New Brunswick, NJ, USA

Multifactorial etiology of QTc prolongation: Understanding the medication risk and electrolyte imbalance

Background: Prolonged QTc interval is one of the critical risk factors for torsade de pointes and sudden cardiac death. QTc prolongation can be congenital or acquired. Medication side effects and electrolyte disturbances are two major acquired causes of a prolonged QTc interval.

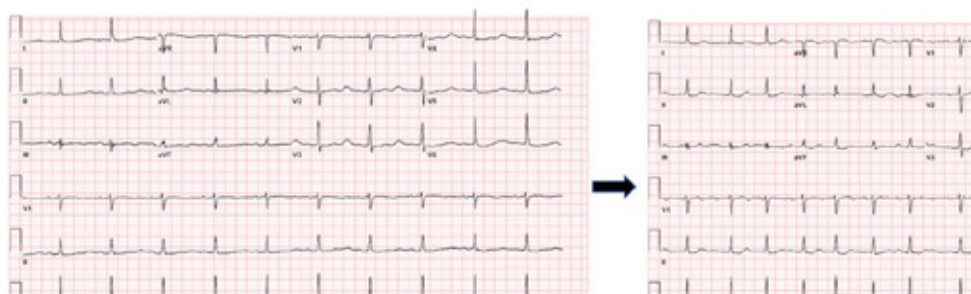
Case presentation: A 79-year-old female, with a past medical history significant of paroxysmal atrial fibrillation, hypertension, and chronic lower extremity swelling, presented to the emergency department with a chief complaint of syncope. One of her medications, metoprolol, was discontinued recently due to persistent bradycardia. She missed her cardiologist's appointment last month when she was scheduled for dose adjustments of amiodarone. She has been on oral amiodarone 200 mg once daily. She takes furosemide for chronic lower extremity swelling. Vitals and physical exams were within normal limits.

Results: The electrocardiogram on admission showed normal sinus rhythm, and 62 beats per minute ventricular rate. The corrected QTc interval was 692 milliseconds. Her potassium level was 3.1 millimole/liter.

Decision making: The patient was admitted and placed on continuous cardiac monitoring. Amiodarone and furosemide were discontinued. The patient was given oral potassium supplements and encouraged to take a potassium-rich diet. A repeat electrocardiogram 2 days later, showed a QTc interval of 501 milliseconds. The patient did not have further syncopal episodes during her hospital stay.

Conclusion: Amiodarone has one of the most potent side effects of QTc prolongation. Furosemide induces hypokalemia due to its diuretic effect, which further increases the risk of prolonged QTc. These medications require close monitoring and dose adjustments. Patients should be counseled regarding these side effects, and related symptoms and seek medical care promptly.

Related Images:



What will audience learn from your presentation?

- Identify the symptoms and signs related to QTc prolongation
- Understand the mechanism via which medications and electrolyte abnormalities cause prolonged QTc
- Adopting appropriate measures to mitigate the triggering agents and perform close cardiac monitoring
- Reversal of the prolonged QTc within normal range on correction of the risk factors
- Realize the importance of patient education and close follow up of medication dose/side effects

Biography:

Dr. Shikha Jha completed her medical school from National Medical College, Nepal. She worked as a medical officer in Nepal for 2 years. She completed Global Clinical Scholars Research Training from Harvard Medical School, Boston, MA, USA in 2020. She joined residency in Internal Medicine at Saint Peter's University Hospital, New Jersey, USA in 2020. She is currently a 2nd year medical resident. She wants to pursue cardiology in future. She enjoys enhancing her research skill in this subspecialty via writing papers, attending national and international conferences. She has published several articles in cardiology topics.



Shikha Jha^{1*}, Dinesh Singal²

¹Internal Medicine, Saint Peter's University Hospital/Rutgers, New Brunswick, NJ, USA

²Cardiology, Saint Peter's University Hospital/Rutgers, New Brunswick, NJ, USA

Evidence of multiple vessel disease on coronary angiography: A case of preoperative cardiac evaluation

Background: Triple vessel coronary artery disease is a life threatening cardiovascular condition. Patients who are asymptomatic yet have a high pretest probability should undergo an appropriate diagnostic test before the occurrence of an adverse event.

Case presentation: A 68-year-old male with a past medical history significant for hypertension, hyperlipidemia, type 2 diabetes mellitus, prostate cancer, and strong family history of sudden cardiac death, presented to the outpatient clinic for a preoperative cardiac evaluation. He was scheduled for prostatectomy surgery in the same month. He had no cardiorespiratory complaints. Physical exam, vitals, and labs were within normal limits. His Metabolic Equivalents (METs) score was 8 points, and the Revised Cardiac Risk Index (RCRI) score was class 1 risk. The electrocardiogram showed normal sinus rhythm, with no acute changes. He underwent an exercise stress test in view of strong pretest probability. He was found to have significant ST depression in multiple leads, both during the activity and recovery phases. The cardiac troponins were ordered, which were normal.

Results: Due to concerning abnormalities on the exercise stress test and strong risk factors, he underwent cardiac catheterization. The cardiac catheterization showed multivessel coronary occlusive disease.

Decision making: The critical findings of the coronary angiogram were explained to the patient. The prostatectomy surgery was withheld. He underwent coronary artery bypass graft in view of multivessel occlusive disease and known history of diabetes.

Conclusion: The diagnosis of coronary artery disease should be based on both pretest probability and the sensitivity of each diagnostic test. Cardiac catheterization is highly sensitive in detecting the anatomical location and severity of stenosis in the coronary arteries. Abnormalities noted on a particular test should always be followed by a further evaluation to prevent near misses or adverse events.

Related Images:



Audience Take Away:

- Asymptomatic patients can have critical underlying coronary artery diseases
- Pretest probability plays a crucial role in deciding appropriate diagnostic tests
- Understand the sensitivity and specificity of each diagnostic test, such as electrocardiogram, exercise stress test, myocardial perfusion scan and coronary angiogram
- Abnormal results of one diagnostic test should be followed by further evaluation
- Importance of coronary angiography in detecting anatomical location and degree of stenosis
- Extent and location of stenosis aids in further deciding between percutaneous coronary intervention and coronary artery bypass graft

Biography:

Dr. Shikha Jha completed her medical school from National Medical College, Nepal. She worked as a medical officer in Nepal for 2 years. She completed Global Clinical Scholars Research Training from Harvard Medical School, Boston, MA, USA in 2020. She joined residency in Internal Medicine at Saint Peter's University Hospital, New Jersey, USA in 2020. She is currently a 2nd year medical resident. She wants to pursue cardiology in future. She enjoys enhancing her research skill in this subspecialty via writing papers, attending national and international conferences. She has published several articles in cardiology topics.

**Rahul Sethi^{1*}, Aakash Pannu²**

¹Department of Internal Medicine, Yerevan State Medical University, Yerevan, Armenia

²Faculty of General Medicine, Yerevan State Medical University, Yerevan, Armenia

Role of multimodality imaging in diagnosis, treatment and prognosis/risk stratification in patent ductus arteriosus patients

Introduction: The ductus arteriosus is a vascular structure that connects the proximal descending aorta to the roof of the main pulmonary artery near the origin of the left branch pulmonary artery. This physiologically essential fetal structure normally closes spontaneously after birth. After the first few weeks of life, persistence of ductal patency is abnormal. And this abnormal presence of the ductus arteriosus is called PDA/patent ductus arteriosus. The physiological impact and clinical significance of the PDA depend largely on its size and the underlying cardiovascular status of the patient in recent years, cardiac imaging has advanced technologically, and patients with cardiovascular disease have become increasing more complex. This has led to the development of multimodal imaging, that is, the integration of several different imaging techniques with a single objective: to establish a precise diagnosis of the disease, in order guide treatment and predict prognosis throughout the patient's follow-up.

Objective: Our objective here is to establish and sum-up the importance and predict the potential of practical applications of multimodality imaging in PDA patients.

Methodology: Since there has been a lack of organized data on the application of multimodality imaging in congenital heart disease patients particularly patent ductus arteriosus/PUD. So in order to stratify the data we performed a fundamental/basic research, which aims to

- Seeks generalization
- Aims at basic disease processes
- Attempts to explain why things happen
- Tries to get all the facts available till date, with sufficient data to support the objective
- Reports in technical language of the topic

Conclusions: The use of multimodality imaging has been proved to help specialists provide the patients with an early diagnosis and a much more detailed information on about how the disease might progress in the future, and of-course the risk involved with it, also on the other hand has provided researchers with much more detailed and relevant data on how the disease progresses pathologically providing a better insight for developing and designing or customizing the treatment modalities for such patients. There is lot to learn for us about the potential this technique holds and there is a long way to go, but the future looks promising.

Audience Take Away:

- The use of multimodality imaging has been proved to help specialists provide the patients with an early diagnosis and a much more detailed information on about how the disease might progress in the future
- The study will help specialists calculate the risk involved with congenital heart defects, also on the other hand will provide researchers with much more detailed and relevant data on how the disease progresses pathologically providing a better insight for developing and designing or customizing the treatment modalities for such patients. There is lot to learn for us about the potential this technique holds and there is a long way to go, but the future looks promising

Biography:

In 2008, Dr. Rahul graduated from YSMU with a Bachelor's degree in general medicine. Following his first degree, He did an MBA in hospital administration and fellowships in critical care medicine completed in 2017,2018 and 2021 respectively after which in 2020, He completed masters in Internal Medicine. He completed his Bachelor's with flying colors and was selected to even read Hippocratic oath for whole of his passing batch. During Master's degree, He excelled at academics and completed his masters with very high marks. It was during his masters when he started his research work and got number of articles and abstracts published in various international conferences and journals. This experience not only provided him the opportunity to practice different forms of scientific communication, but also developed his capacity to interact with the public as well as scientists, journalists, scientific and governmental institutions. Through his studies and clinical experience not only he learned to treat patients but also learned how to use write and promote articles, work in science festivals, realization of exhibitions, organization of scientific events. At present, He is working in YSMU in capacity of head of the department for International Students' Affairs and assistant teaching in operative and topographical surgery department. With this, he is also consulting patients in department of Internal Medicine in Mikaleyan Institute of Surgery in capacity of consultant physician and also happens to be consultant physician on panel for Indian embassy in Armenia.



Elliot Jackson-Smith*, Stephanie Zioupos

Warwick Medical School, University of Warwick, Coventry, United Kingdom

Bioresorbable vascular scaffolds versus conventional drug-eluting stents: A systematic review and meta-analysis of randomised controlled trials

Background: Bioresorbable Vascular Scaffolds (BVS) are developed as a replacement for conventional Drug-Eluting Stents (DES) used in Percutaneous Coronary Intervention (PCI). They are designed to limit the accrual of late adverse events observed in DES by dissolving once they have restored lasting patency. Despite their initial promise, studies have since raised safety concerns for the period before their resorption (around 2-years).

Objectives: Compare the safety and efficacy of BVS vs contemporary DES in patients receiving PCI for coronary artery disease across a complete range of Randomised Controlled Trial (RCT) follow-up intervals.

Methods: MEDLINE, EMBASE, and Web of Science were searched from inception through 5th January 2022 for RCTs comparing clinical outcomes of BVS vs DES. The primary safety outcome was Stent Thrombosis (ST), and the primary efficacy outcome was Target Lesion Failure (TLF: composite of cardiac death, Target Vessel Myocardial Infarction [TVMI], and ischaemia driven target lesion revascularisation [ID-TLR]). Studies were appraised using Cochrane's Risk of Bias tool and meta-analysis was performed using RevMan 5.4. This study is registered with PROSPERO: CRD42022301449.

Results: 11,919 patients were randomised to receive either BVS (n = 6,438) or DES (n = 5,481) across 17 trials (follow-up intervals from 3-months to 5-years). BVS demonstrated increased risk of ST across all timepoints (peaking at 2-years with risk ratio [RR]: 3.47; 95% confidence interval [CI]: 1.80 to 6.70; p = 0.0002). Similarly, they showed increased risk of TLF (peaking at 3-years, RR: 1.35; 95% CI: 1.07 to 1.70; p = 0.01) resulting from high rates of TVMI and ID-TLR. Though improvements were observed after device dissolution (5-year follow-up), these were non-significant.

Conclusion: This meta-analysis demonstrates that current BVS are inferior to contemporary DES throughout the first 5-years at minimum.

Audience Take Away:

- The limitations of currently used Drug-Eluting coronary Stents (DES)
- How Bioresorbable Vascular Scaffolds (BVS) were designed to improve on them
- That recent research (including our systematic review and meta-analysis) demonstrates that BVS are in fact inferior to conventional DES in both safety and efficacy outcomes
- The reasons why this is suspected to be the case, and how BVS may be improved in future
- This information provides further insight to clinicians when deciding what stent they use/recommend, and may inform how they discuss these choices with their patients. It is hoped that the presentation will drive further research comparing long term follow-up of BVS versus DES, to establish if the risk balance changes long after device dissolution. Furthermore, the reasons why BVS deliver inferior safety and efficacy profiles compared to DES should drive continued progress in future stent design

Biography:

Elliot is a final year medical student at the University of Warwick, with a keen interest in cardiology and cardiothoracics. He previously studied an MSc in Bioengineering at the University of Nottingham (graduating in 2019) and a BEng in Mechanical Engineering (graduating in 2018). During these degrees, he worked on projects involving modelling cancer metastasis with biomimetic bioreactors and modelling the pathogenesis of atherosclerosis using computational techniques.



Yasser Mohammed Hassanain Elsayed

Critical Care Department, *Egyptian Ministry of Health* (MOH), Damietta, Damietta Health Affairs, Damietta, Egypt

Wavy triple sign of hypocalcemia or Yasser's sign-in diabetic ketoacidosis; reversal effect and diverse management; retrospective-observational study

Aim of the study: Clarification of the effect of management of diabetic ketoacidosis on both hypocalcemia and electrocardiographic "Wavy triple sign or Yasser's sign" is the target for the current study.

Background: Hypocalcemia is a well-known serious electrolyte disturbance characterized by calcium deficiency. Diabetic ketoacidosis is a life-threatening problem that affects people with diabetes that is usually associated with electrocardiographic and electrolytes changes such as hypocalcemia. An electrocardiographic Wavy triple sign (Yasser's sign) of hypocalcemia is a new diagnostic sign seen in 97.3% of hypocalcemia.

Method of study and patients: The author reported retrospective-observational 27-case report series. The study was conducted in Fraskour Central Hospital in the intensive care unit for nearly 15 months, starting on Jan 14, 2019, and ending on Jul 12, 2020. All included cases were latent hypocalcemia. Oral calcium and vitamin D preparation on discharge was supplied.

Results; The mean age was: 44.6 years, with female sex predominance (63%). The main complaints in the study were tachypnea (81.48 %) vs. and tachypnea with chest pain (18.5%). Diabetic ketoacidosis (70.37%) and combined diabetic ketoacidosis with ischemic heart disease (11.11%) are the most common risk factors. All cases were latent tetany. Complete electrocardiographic recovery without calcium administration in 85.19% vs. nearly normalized response in 11.11% and non-response in 3.7%. Conclusions: The wavy triple electrocardiographic sign (Yasser's sign) and hypocalcemia are commonly seen in diabetic ketoacidosis. Dramatic spontaneous improvement of both wavy triple an electrocardiographic sign (Yasser's sign) and hypocalcemia simultaneously after the management of diabetic ketoacidosis in most cases.

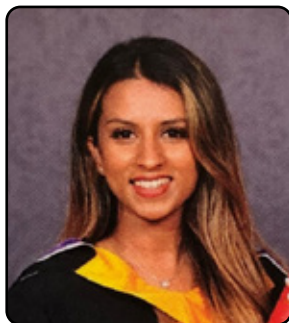
Keywords: Wavy triple an electrocardiographic sign, Yasser's sign in hypocalcemia, Hypocalcemia, Tetany, Diabetic ketoacidosis, Reversal effect

Audience Take Away:

- The audience will know that the wavy triple electrocardiographic sign (Yasser's sign) and hypocalcemia are commonly seen in diabetic ketoacidosis
- The study will help the audience if he knows that there is a dramatic spontaneous improvement of both wavy triple electrocardiographic sign (Yasser's sign) and hypocalcemia simultaneously after the management of diabetic ketoacidosis in most cases
- Widening this research by other faculties, I think will strengthen the teaching cycle
- The practical solution is the main aim of this study by avoiding the use of calcium preparations if there will be a dramatic spontaneous improvement of both wavy triple electrocardiographic sign (Yasser's sign) and hypocalcemia simultaneously after the management of DKA
- I think that this will improve the accuracy of a design, or provide new information to assist in a design problem

Biography:

Dr. Yasser Mohammed Hassanain Elsayed is a Critical care physician, cardiologist, general coordinator of clinical research, researcher, reviewer, instructor, and speaker at the Egyptian Ministry of Health, Egypt. He obtained a Bachelor of medicine and surgery (MBBCh) from Al-Azher University, Egypt, and a PGDip in Cardiology from Middlesex University, UK. He was honored for his research by the General Syndicate of Physicians, Damietta medical syndicate, Damietta cardiac society, Fraskoor central hospital, and Kafr El-Bateekh central hospital. The researcher has (108) publicized articles as a single author and (4) medical books. Of which three (3) innovative "Signs", four (4) "Phenomena", one (1) "Modification", and one (1) "Maneuver". The most famous articles for the researcher is; 1.Graded Phenomenon (Yasser's Phenomenon). 2.Wavy Triple An Electrocardiographic Sign (Yasser's Sign).3.Wavy Double An Electrocardiographic Sign (Yasser's Sign). 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 (changeable phenomenon or Yasser's phenomenon). 7.Yasser's COVID-19 Discrepancy phenomenon. 8.Yasser's Maneuver for Regaining Consciousness in the Psychogenic Coma; A Novel Maneuver in Emergency Medicine and Psychiatry. 9. Oxygen Reversal of Coronary Artery Spasm with Modification of International Standards for the Diagnostic Criteria of Coronary



Rachel H. Pathimagaraj^{1*}, Michael J. Foley^{1,2}, Alexandra N. Nowbar^{1,2}, Christopher A. Rajkumar^{1,2}, Matthew J. Shun-Shin^{1,2}, James P. Howard^{1,2}, Darrel P. Francis^{1,2}, Rasha K. Al-Lamee^{1,2}

¹National Heart and Lung Institute, Imperial College London, UK

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Nature and intensity of angina symptoms: Association between Seattle Angina Questionnaire, Canadian Cardiovascular Class and Rose Angina Questionnaire in the objective randomised blinded investigation with optimal medical therapy of angioplasty in stable angina trial

Background: Current angina questionnaires have been validated with data from unblinded trials of Percutaneous Coronary Intervention (PCI) in stable angina. ORBITA, the first placebo-controlled trial of PCI, provides an opportunity to validate existing angina assessments.

Methods: Symptoms were assessed at enrolment, pre-randomization, and follow-up. Evaluation of physician-assessed symptom severity, patient-reported symptom severity and frequency, nature of symptoms and quality of life were performed using the Canadian Cardiovascular Society (CCS) Class, Seattle Angina Questionnaire (SAQ), Rose Angina Questionnaire (Rose) and EuroQol 5 Dimensions (EQ5D-5L) questionnaire respectively. We tested the associations of these assessments intended to measure similar constructs. A linear regression model was used for continuous variables and proportional odds ordinal logistic model for ordinal variables.

Results: Physician-assessed symptom severity using CCS was associated with patient-reported SAQ angina frequency at enrolment, pre-randomization and follow-up ($R^2 = 0.046$, $p = 0.0026$; $R^2 = 0.213$, $p < 0.0001$ and $R^2 = 0.266$, $p < 0.0001$ respectively). Similar associations were seen with SAQ physical limitation. Rose was associated with SAQ physical limitation at enrolment and follow up, but not at pre-randomization ($R^2 = 0.065$, $p = 0.0003$; $R^2 = 0.075$, $p = 0.0002$ and $R^2 = 0.005$, $p = 0.3307$ respectively). EQ5D-5L Visual Analogue Score was associated with SAQ quality of life at enrolment, pre-randomization and follow-up ($R^2 = 0.369$, $p < 0.0001$; $R^2 = 0.240$, $p < 0.0001$ and $R^2 = 0.316$, $p < 0.0001$ respectively).

Conclusion: The association between CCS and SAQ physical limitation was strong, supporting their convergent validity. Similarly, the association between EQ5D-5L and SAQ quality of life was strong, suggesting they measure similar construct in assessing quality of life in patients with angina.

Audience Take Away:

- ORBITA- the first placebo-controlled trial of percutaneous coronary intervention (PCI), enabled the validation of existing angina metrics (Seattle Angina Questionnaire (SAQ), Canadian Cardiovascular Society (CCS) Class and Rose Angina Questionnaire (RAQ)) for the first time with placebo-controlled data. The existing metrics, which are used in trials of PCI, were previously validated with unblinded data. Our blinded data is therefore important for the use of angina symptom assessments in future PCI trials
- Validation of angina symptom assessments with blinded evidence is important as it may improve the accuracy of study methods in trials which utilize these assessments to capture patients' angina symptoms
- Our data will be insightful, as the first blinded evidence, for faculties who utilize these angina metrics in their study design to capture patients' angina symptoms in PCI trials

Biography:

Miss Rachel Pathimagaraj is a final year medical student from Manchester Medical School, The University of Manchester and is due to qualify as a doctor in July 2023. She has strong interests in interventional cardiology and graduated with a First-Class Honours BSc in Cardiovascular Sciences from Imperial College London in 2021, scoring top 10% within her cohort. She is currently working with the research group of Dr Rasha Al-Lamee at the National Heart and Lung Institute, Imperial College London. She has publications in the British Medical Journal and in the Journal of Cardiac Surgery and is currently co-authoring papers.



Gustavo Lionel Knop

Mayo Clinic, United States

Heartmate 3 left ventricular assist device superiority demonstrated in momentum 3 trial

HearthMate 3 (HM3) Left Ventricular Assist Device (LVAD), a fully magnetically levitated centrifugal-flow pump has been evaluated in MOMENTUM 3, the largest LVAD trial ever conducted demonstrating excellent survival and safety outcomes with HeartMate 3™ LVAD. It has been published in 2021. The trial enrolled 2200 HM3 implanted patients and compared outcomes. The survival rate was 81%, being the highest published 2-years survival rate for any LVAD. The study showed that HM3 patients had the lowest hemocompatibility related adverse events of LVAD' with only 9% major strokes and 1% thrombosis complication events at 2 years. HeartMate 3 LVAD provides immediate, significant, and sustained improvements in Functional Capacity and Quality of Life: 79% of patients improved from NYHA Class IIIB/IV at baseline to NYHA Class I/II by 6 months, with sustained better condition in 80% of patients through 2 years ($P < 0.0001$). The quality of life resulted in an upgraded more than thirty points according to the Kansas City Cardiomyopathy (KCCM) score and was solid through 2 years. The average 6 minutes' walk increased from 136 to 323 meters. These results were consistent, despite the inclusion of sicker patients in the second series of enrolment (more intra-aortic balloon pump use and INTERMACS profile 1), who were more often intended for destination therapy.

Conclusions: The primary results of accumulating HM3 LVAD experience in 2200 patients suggest a lower adverse event burden and similar survival to heart transplantation at 2 years, with higher quality of life compared to other LVAD devices. Although 'unstable' INTERMACS profile 1–2 patients demonstrate slightly lower survival when compared with the more stable INTERMACS 3 profile (who also require inotropic therapy), the composite primary endpoint (survival free of disabling stroke or reoperation to replace or remove a malfunctioning device) is similar between groups. These data provide confidence that the HM3 pump performs well throughout even in the presence of clinical severity.

Biography:

Dr Knop is a Cardiovascular Surgeon at Mayo Clinic, Rochester. He has been a Consultant Cardiothoracic Surgeon in UK and Argentina. He is the main author in publications in reputed journals like the J. of Th and CV Surgery, J. of CTH Surgery, among others. He also served as an Editorial Board member in two journals, Reviewer of Medical Journals, and co-Investigator in the EXCEL and ERICCA study. He was a Lecturer at the University of Cordoba and University of the South in Argentina. He is candidate for Instructor of Surgery at Mayo Clinic. His published material served as a reference from other researchers in professional publications in the academic field. He was the speaker in prestigious Symposiums. He graduated with honours at the University of Buenos Aires.



Tracie Frank Mayer
Self-Employed, Germany

Aparent's perspective: Incompatible with nature–aparent's memoir of congenital heart disease

While 99% of the time the heart develops normally in utero, approximately 1% of the time there is a problem usually involving one of the four heart valves, holes between the two atrium or ventricles or between the aorta and pulmonary artery or some combination of lesions. Although some problems are due to known chromosomal or gene abnormalities, the etiology of most are still unknown. Much less commonly, perhaps one in one hundred thousand, there seems to be a problem with the bilaterally and there is only one atrium, one ventricle or one vessel leaving the heart. When there are variations of venous return to the atrium there may be variations in the position of the abdominal organs and veins, usually called heterotaxy syndrome.

My son Marc was born with one of these heterotaxy syndromes with all the systemic veins coming back to the heart entering into a "common" atrium, a single large ventricle, and only one great vessel leaving the heart, in Marc's case the aorta. The pulmonary artery, the vessel going to the lungs was not connected to the heart.

Having a single atrium and single right ventricle, mitral atresia and pulmonary atresia; basically only half of his heart as well as with Heterotaxy Syndrome whereby the internal organs are arranged on the wrong side of the body–the cardiologists gave him no hope and told me to let him die. I was alone in a foreign country.

My multi-award winning story, *Incompatible with Nature–Against the Odds: A Parent's Memoir of Congenital Heart Disease* details my struggle of doing all I can to ensure my son has a chance at life while battling my own fears, an array of naysaying doctors, my son's innumerable infections, and struggling with a foreign language.

Despite the prognosis and the difficulties, Marc is today thirty-seven years old and thriving. I have written and want to share this story to inspire doctors and caregivers to be empathetic for their charges and to encourage patients to be courageous and assertive in their health care. Never give up.

Biography:

Tracie Frank Mayer is author of award-winning narrative *Incompatible with Nature–Against the Odds: A Parent's Memoir of Congenital Heart Disease*. Residing in Cologne, Germany since 1984, Tracie writes, speaks, fundraises, moderates Organizations: Fontan Heart Organization, Parents Initiative for Children with Heart Disease of Cologne, Ronald McDonald House in Cologne/ Vienna Doctors for Ethiopia K, VITA Assistant Dogs Organization. Speaking engagements include: World Pediatric Cardiology Surgery Congress in Dubai, Keynote address Go Red for Women Rockford, Illinois, University of Illinois Medical School in Rockford. Chair ACHA Walk for 1 in 100 Seattle, Member American International Women's Club of Cologne

POSTERS

DAY 02

3RD EDITION OF

CARDIOLOGY WORLD CONFERENCE

14-15 SEPT

**Bautista Arvinjay*, Mesina, Marygrace Margie, Dizon Erwin**

Department of Internal Medicine, Cardinal Santos Medical Center, San Juan City, Metro Manila, Philippines

Association of 2D echocardiogram findings and survival rate in severe and critical COVID-19 adult patients: A single center retrospective study

Introduction: Studies show transthoracic 2D echocardiogram findings are varied in terms of right and left ventricular systolic function in COVID-19 patients. This three-month retrospective cohort analyzed 135 Severe and Critical COVID-19 adult patients admitted at Cardinal Santos Medical Center, primarily for right ventricular systolic function (RVSF) via transthoracic 2D echocardiogram and its association to in-hospital mortality. Other parameters such as age, sex, comorbidities, inflammatory markers, initial therapeutics and occurrence of prothrombotic events were also studied.

Methods: Total of 135 COVID-19 Severe and Critical COVID-19 patients were included from March 2021 to May 2021. Demographics, clinical characteristics, and echocardiographic findings were obtained via chart review. Descriptive statistics were used to summarize the findings and Kaplan Meier analysis was used to determine the estimated survival rate.

Results: Regardless of disease severity, RVSF values were noted to be normal and were not associated with in-hospital mortality (p-value: 0.052). However, there is significant difference between TAPSE of survivors and non-survivors (p-value: 0.002), and TAPSE <17 mm were noted to have lower estimated survival rate. Results also show that age, Critical COVID, CKD, and initiating hemoperfusion, elevated ferritin, D-dimer, procalcitonin, and withholding Tocilizumab and anticoagulation were contributing factors to in-hospital mortality. This study shows that prothrombotic events are not directly associated with in-hospital mortality.

Conclusion: Right ventricular systolic function is preserved in Severe and Critical COVID-19 patients. However, TAPSE values are significant between survivors and non-survivors. Likewise, RVSF findings are not directly correlated with clinical characteristics in determining survival rate.

Audience Take Away:

- This study will be able to supplement current guidelines on use of echocardiography for severe and critical COVID-19 patients
- Results of this study can be used in prognosticating severe and critical COVID-19 patients, especially on the interaction between 2D echocardiography parameters and inflammatory markers
- The framework of this study can be further used in future research on the value of right ventricular systolic function echocardiographic parameter in the management and prognostication of COVID-19 disease severity

Biography:

The primary author, Arvinjay Alcantara Bautista, finished cum laude for his Bachelor of Science in Life Sciences Major in Biomedical Science undergraduate degree at Ateneo de Manila University. He then finished his post graduate degree of Doctor of Medicine at the University of the East Ramon Magsaysay Memorial Medical Center. He is currently a 3rd year senior Internal Medicine Resident at Cardinal Santos Medical Center, San Juan, Metro Manila, Philippines. He plans to further sub-specialize in Adult Cardiology after the residency program.



Urazalina Saule Jaksylykovna^{1*}, Usaeva Guzal Pakhmatovna²

¹Department of cardiology, NPJS «Asfendiarov Kazakh National Medical University», Almaty, Kazakhstan

²Department of cardiology, ISC "Scientific-Research Institute of Cardiology and Internal diseases", Almaty, Kazakhstan

Correlation of arterial stiffness parameters with indicators of carotid Atherosclerosis in patients with metabolic syndrome

Background: A number of studies have shown that Metabolic Syndrome (MetS) is accompanied by an increase in arterial stiffness. In connection therewith, early detection of an increase in arterial stiffness in patients with MetS can help to prevent cardiovascular complications of them.

Aim: To determine the relationship between arterial stiffness parameters such as cfPWV and CAVI with carotid atherosclerosis indicators (IMT, carotid plaque presence) in patients with metabolic syndrome.

Methods: The study included 100 patients at the age of 40-70 years: 45 men and 55 women (56.54 ± 8.98 y.) Subjects were divided into 2 groups: 1st - 42 patients with MetS; 2nd - 58 patients without MetS. The arterial stiffness parameters such as CAVI and cfPWV were calculated. In analysis we used threshold values recommended by manufacturers and European expert consensus document on arterial stiffness: for CAVI – <8 , for cfPWV – ≤ 10 m / c). Duplex scanning carotid arteries was performed to evaluate the intima - media thickness (IMT) and carotid plaque presence.

Results: In the group with MetS the CAVI is significantly associated with the indicators of carotid atherosclerosis: IMT (OR=4.94 95%; CI: 1.49-3.80; $p=0.047$), carotid plaque presence (OR=3.06; 95% CI: 1.42-2.28; $p=0.065$). But statistically significant associations of cfPWV with indicators of carotid atherosclerosis were not obtained ($p>0.05$). In the group without MetS none of the arterial stiffness parameters (CAVI, cfPWV) did not statistically significantly correlated with any of the carotid atherosclerosis indicators ($p>0.05$).

Conclusion: The CAVI parameter, in contrast to the cfPWV, was statistically significantly correlated with indicators of carotid atherosclerosis in patients with metabolic syndrome. In this connection, this parameter can be used to identify signs of not only increased arterial stiffness, but also to determine subclinical signs of carotid atherosclerosis in patients with metabolic syndrome.

Keywords: metabolic syndrome, arterial stiffness, CAVI, carotid atherosclerosis

Audience Take Away:

- The audience can use the results of this work in their future research
- CAVI parameter can be used to identify subclinical signs of carotid atherosclerosis
- Yes, our research could be used by other faculty to expand their research
- We think that results of our research may give some practical solution to the problem of atherosclerotic early signs diagnostics in patients with metabolic syndrome

Biography:

Professor Saule Urazalina graduated as medical doctor from the 1-st Moscow medical Institute, Russia, in 1987. She worked in the research group of Prof. Boytsov S.A. at the Russian Cardiology Research-and- Production Center, Ministry of Health, Russia, Moscow from 2009 to 2013y.y. After defending her doctoral dissertation, she received the degree of Medical doctor Sciences and PhD degree at the same organization. Now she works as a professor of the cardiology department of NPJS «Asfendiarov Kazakh National Medical University», Almaty, Kazakhstan. She has published more than 50 research articles in medical science journals, including journals reviewed by Scopus.



J. Lange*, J. Michael, B. Gppner, A. Gobert
Certmedica International GmbH, Aschaffenburg/Germany

Preferential binding of oxidized fat by polyglucosamine L112

Introduction: In 2021, cardiovascular diseases were identified as the leading cause of death worldwide by the WHO (Factsheet 2021). They are caused by oxidized LDL triggering a transformation of macrophages in the blood vessel wall into cholesterol-laden foam cells (Borén et al., 2020; Maiolino et al., 2013). Those lead to plaque formation and atherosclerosis, often followed by coronary heart diseases or strokes (Goldstein and Brown, 2015; Khatana et al., 2020). Oxidized LDL result from the absorption of oxidized fat which are mainly found in processed food such as burgers or chips. Polyglucosamine (PGA) binds high amounts of dietary fat (Froese and Ludlow, 2014; Furda, 1998). It is used in medical devices to support the treatment of overweight and obesity as well as weight control (Cnubben et al., 2016; Froese and Ludlow, 2014). With a particular affinity for binding oxidized fat, the use of PGA L112 might also be a way to prevent atherosclerosis.

Material and methods: Olive oil was treated at 90 °C for 0, 24, 48 and 72 h for controlled oxidation. In all oils, the content of peroxides (PO, quadruple determination) and free fatty acids (FFA, triple determination) were determined titrimetrically according to EWG 2568/91 (2015) for characterization of oxidative state. Following a validated method, a fat binding test was performed using 3200 g oil per g PGA L112 (Froese and Ludlow, 2014). The supernatant was collected and analysed. Shapiro-Wilk-Test and ANOVA or Kruskal-Wallis-Test followed by Dunn-Bonferroni were used for statistical evaluation ($\alpha = 0,05$).

Results: Heat treatment resulted in a significant increase in PO from $10,73 \pm 0,47$ meq O₂/kg to $33,78 \pm 0,34$ meq O₂/kg (pANOVA < 0,001). A nearly linear increase in FFA from $0,27 \pm 0,00$ g/100 g to $0,30 \pm 0,00$ g/100 g was observed between 0 and 72 h (pANOVA < 0,001). Thus, oxidation of the oil was successfully induced by heat treatment. The fat binding ability increased nearly linearly with the oxidation time from $74,2 \pm 7,0$ % for native oil to $97,9 \pm 2,4$ % for 72 h oxidized oil (pKW < 0,001). The test was repeated with a mixture of native and oxidized oil (50:50 w/w) to mimic the fat mixture in food, again demonstrating an increase in bound fat with oxidation time (pKW < 0,001). Analysis revealed that using native oil, already most of the PO and FFA were bound by PGA L112 (PO: $65,5 \pm 0,8$ %, FFA: $75,2 \pm 0,2$ %). This ratio grew significantly with rising oxidation time up to $86,2 \pm 0,1$ % of the PO (pKW < 0,001) and $85,1 \pm 0,0$ % of the FFA (pKW < 0,001).

Conclusion: We demonstrated increased binding of fat to PGA L112 with longer oxidation time. There was a special affinity towards the oxidized components. We conclude that medical devices containing PGA L112 could be able to lower the absorption of oxidized dietary fat reducing the formation of oxidized LDL and therefore the risk of atherosclerosis and cardiovascular diseases.

Audience Take Away:

- The intake of oxidized fat can lead to oxidized LDL causing foam cell and plaque formation that lead to atherosclerosis
- Polyglucosamine L112 has a particular affinity for binding oxidized fat components
- Medical devices containing Polyglucosamin L112 could be able to reduce the risk of atherosclerosis and cardiovascular diseases

Biography:

Janine Lange studied Process Engineering at Technische Universität Dresden, Germany, focusing on Food Engineering. She graduated as Diplom-Ingenieurin in 2021. Afterwards, she joined the Certmedica International GmbH, a manufacturer of medical devices in Aschaffenburg, Germany, in the department of Research and Development.



Rachel H. Pathimagaraj^{1*}, Michael J. Foley^{1,2}, Christopher A. Rajkumar^{1,2}, Fiyyaz Ahmed-Jushuf^{1,2}, Rasha K. Al-Lamee^{1,2}

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A case report of an intraprocedural coronary sinus reducer embolisation to the right pulmonary artery

Background: Implantation of a coronary sinus reducer (CSR, Neovasc Inc) is a guideline recommended treatment option to relieve refractory angina in patients who have no further revascularization options. To date, there is limited evidence on the management of a CSR embolisation during implantation. This case reviews the short-term clinical implications of an intraprocedural device embolisation to the right pulmonary artery (PA) which remained in situ.

Case Summary: A 75-year-old male patient with known coronary artery disease presented with exertional chest pain despite. He had a history of coronary artery bypass graft surgery in 1988 and re-do surgery in 1997. He was taking 4 classes of antianginal therapy and physician assessment of chest pain was Canadian Cardiovascular Society class III. A coronary angiogram demonstrated severe obstruction of the native coronary arteries and saphenous vein grafts with no suitable targets for percutaneous coronary intervention. A stress perfusion cardiac MRI scan demonstrated ischaemia in multiple territories and the patient was referred for implantation of a CSR to improve angina burden. During the implantation procedure the device was positioned and successfully deployed in the coronary sinus via a CSR guide catheter, delivered through a 9Fr right internal jugular venous sheath. On withdrawal of the delivery balloon however, the device embolized to the right atrium and subsequently to the right PA. An attempt was made to snare the device via a second venous puncture in the right femoral vein but this was unsuccessful. The patient remained well throughout. The CSR was seen on computed tomography pulmonary angiogram (CTPA) in the right lower lobe pulmonary artery and was not associated with any radiological sequelae. The patient was discharged the following day with no new symptoms and remained well at 6 month follow up.

Discussion: CSR embolisation is described in the literature as a complication of CSR implantation but the best management is unknown. In this case, there were no clinical sequelae from leaving the device in situ following embolisation to the right PA, in the short and medium term. The patient was asymptomatic, and his angina remained unchanged. Conservative management may be a reasonable management option following CSR embolisation.

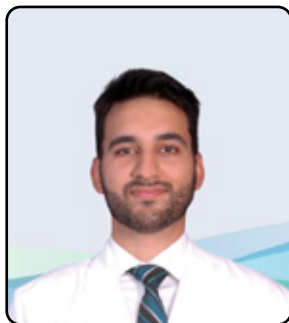
Keywords: refractory angina, chronic coronary syndrome, coronary sinus, device embolisation

Audience Take Away:

- Coronary sinus reducer embolisation is a recognised complication of the implantation procedure however there is currently limited evidence on how it can be managed safely
- Our case demonstrates that conservative management may be a reasonable management option

Biography:

Miss Rachel Pathimagaraj is a final year medical student from Manchester Medical School, The University of Manchester and is due to qualify as a doctor in July 2023. She has strong interests in interventional cardiology and graduated with a First-Class Honours BSc in Cardiovascular Sciences from Imperial College London in 2021, scoring top 10% within her cohort. She is currently working with the research group of Dr Rasha Al-Lamee at the National Heart and Lung Institute, Imperial College London. She has publications in the British Medical Journal and in the Journal of Cardiac Surgery and is currently co-authoring papers.



Hafez Golzarian^{1*}, Alaha Mariam¹, Sidra Shah¹, Benjamin Pasley¹, Anne R Edgerton², William E Scherger³, Vanessa L Stallkamp³, Amanda Laird⁴, William Cole⁴, Sandeep M. Patel⁵

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A case of Venous-Arterial Extracorporeal Membrane Oxygenation (VA-ECMO) with co-application of impella in a patient with late peripartum cardiac arrest secondary to amniotic fluid embolism

A mniotic Fluid Embolism (AFE) is a rare but potentially fatal complication of pregnancy that accounts for nearly 1 in 5 maternal deaths globally. Of these deaths, nearly half of them occur within one hour of symptom onset. Therefore, prompt and aggressive resuscitation strategies are crucial in promoting survivability. The use of Venous-Arterial Extracorporeal Membrane Oxygenation (VA-ECMO) has only recently expanded to include such patient populations. We present a case of a mother with a relatively uncomplicated pregnancy who presented to the emergency room late in her third trimester for shortness of breath which rapidly progressed to ARDS. Emergent cesarean section was performed, and a viable healthy newborn was successfully delivered. Immediately after the infant was delivered, the mother had a cardiac arrest. Cardiopulmonary resuscitation was successful after 4 minutes. Subsequent Transthoracic Echo (TTE) revealed biventricular failure with a severely reduced Ejection Fraction (EF) of 0-5%. Additionally, she rapidly developed Disseminated Intravascular Coagulation (DIC) and oliguric renal failure. The decision was made to perform emergent VA-ECMO with co-application of Impella. Repeat TTE post-op showed improvement in EF to 30-35% with moderately reduced RV function. Our patient successfully had complete resolution of cardiogenic shock, DIC, renal failure, and ARDS within 5 days. Serial TTE continued to show improvement in cardiac function throughout the hospitalization course. Patient was subsequently discharged to inpatient rehabilitation unit after continued clinical improvement. Thus, we were able to both safely deliver the baby and successfully resuscitate the mother with the novel combination of VA-ECMO and Impella. This combination is known as ECPella, a very new concept that is quickly gaining popularity and world-wide recognition. Therefore, it is imperative to report such novel applications in unique patient populations as well as their outcomes.

Audience Take Away:

- To learn of a new novel way of managing amniotic fluid embolism and its complications
- To expand the applications of extracorporeal membrane cardiopulmonary resuscitation to include other unique patient populations
- To report a positive outcome for both infant and mother who had cardiac arrest secondary to amniotic fluid embolism
- To encourage the audience to further expand their research in outcomes and complications in the new novel utilization of ECPella

Biography:

Dr. Golzarian studied Molecular Biology at the University of Alabama at Birmingham in 2015. In 2016 he partook in a research internship at the NIH as well as the NCI in Maryland, while completing a Masters in Biotechnology at Johns Hopkins University. He graduated medical school at PCOM in 2021 before moving to Ohio for Internal Medicine residency training where he is pursuing cardiovascular research. He has a strong interest in academia and research. Areas of interest include cardiology, hematology, oncology, as well as cardio-oncology.



Nitin Puri^{1*}, Sneha Pillai¹, Olga V. Fedorova², Hari Vishal Lakhani, Ellen Thompson, Komal Sodhi

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Chronic kidney disease and associated cardiovascular dysfunction exacerbate the progression of cognitive impairment

Introduction: In end-stage Chronic Kidney Disease (CKD) (stages 4-5) the prevalence of Cognitive Impairment (CI) has been estimated at 30-60%, twice the values observed in age- and sex-matched controls. Cardiovascular diseases (CVD) including hypertension and increased Central Arterial Stiffness (CAS) accompany CKD development across all stages of this disease. CAS drives Pulse Pressure (PP) and Pulsatile Component Index (PCI) increases and cerebral microvascular damage resulting in a reduction of blood supply to the brain hereby contributing to CI. Elevated PP and PCI are associated with higher mortality in CVD and CKD independently of BP. The aim of the study was to determine whether CKD potentiates CI development due to CAS and the resultant increase in the PCI, a major contributor to brain and renal microvasculature damage.

Methods: All research was performed in accordance with the guidelines and regulations set forth by the Declaration of Helsinki regarding the use and enrollment of human subjects in research. A total of 40 CKD patients (age 45-50 years and older, CKD stage 4, GFR 15-29, and Creatinine > 1mg/dL) and 30 age and sex-matched healthy control patients were enrolled with exclusion criteria (history of HIV, hepatitis, malignancies, admission and/or surgery for trauma, head injury and pregnancy at time of enrollment). Blood pressure (systolic and diastolic blood pressure (SBP, DBP) was measured, clinical blood work, echocardiography (ECHO) and mini-mental state examination (MMSE) was performed as well as levels of amyloid beta-40 (A β -40) measured. PCI was calculated as difference between peak systolic and end diastolic flow velocity, divided by the flow velocity. The data were analyzed by unpaired two-tailed t-test, Pearson correlation with P values adjusted for false discovery rate, and are presented as mean \pm SEM.

Results: CKD patients had higher SBP, PP, PCI, LV systolic and diastolic volume (estimated by ECHO), lower LV ejection fraction, higher plasma NT-proBNP and AST (CVD markers), glucose, triglycerides, plasma A β -40 (Alzheimer's disease marker), BUN and creatinine (CKD markers) and lower score in MMSE vs. healthy control (p<0.05). Cognitive test results positively correlated with LV stroke volume, negatively correlated with PCI, a measurement of pulsatility of blood pressure, and negatively correlated with plasma ASP, a marker of CVD.

Conclusion: Higher PP, PCI, plasma A β -40 and lower score in MMSE in CKD patients supports our hypothesis that cardiovascular remodeling in CKD patients contributes to the development and progression of CI.

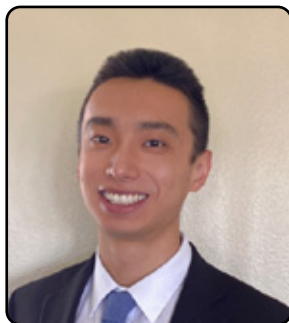
Audience Take Away:

- The present study demonstrates that CKD potentiates cognitive impairment due to central arterial stiffening and the resultant increase in the pulse pressure, a major contributor to brain and renal microvasculature damage.
- The present study demonstrates that targeting the pro-fibrotic markers and fibrosis processes within the arterial wall and renal tissue will ameliorate cognitive impairment in CKD. The present study offers crucial evidence and a cost effective, non-invasive predictive modality demonstrating the efficacy of the proposed panel of biomarkers.

Biography:

Dr. Nitin Puri completed his M.D. (2000) and Master of Surgery (Residency; 2003) in India and Doctor of Philosophy (PhD)—Biomedical Sciences (2010) in New York Medical College, NY. He worked as Assistant Professor, Academic Basic Scientist-Educator Track (2011-2017) in University of Toledo, Toledo OH. Then he worked as a Program Director, MSBS Medical Sciences Program in the University of Toledo (2015-2017). After that, he joined as Associate Dean for Medical Education and an Associate Professor in Biomedical Sciences in JCESOM, Marshall University, Huntington, WV (2017-present).

His area of interest lies in the investigations of the (dys)functional regulation of the cardio-vascular, renal and metabolic systems and their mechanistic approaches and he has published several research and review articles in this area.

**Leo Meller^{1*}, Shay N. Sharma², Ajay N. Sharma³, Ezra A. Amsterdam⁴**¹School of Medicine, University of California, San Diego, CA, USA²Stanford University, Stanford, CA, USA³School of Medicine, University of California, Irvine, CA, USA⁴Division of Cardiology, Department of Internal Medicine, University of California, Davis, Davis, CA, USA**Characterizing the cardiovascular adaptations of space travel: A systematic review**

Background: Space travel results in significant gravitational and radiation stress on both the molecular and systemic levels, resulting in myriad cardiovascular changes that have largely been poorly characterized.

Objective: To conduct a systematic review on the basic science and clinical adaptations of the cardiovascular system after exposure to real or simulated space travel.

Methods: A systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. The PubMed and Cochrane databases were searched in June 2020 with the key words “cardiology and space” and “cardiology and astronaut.” Only basic science and clinical studies in English concerning the study of cardiology and space were included. Case studies, case series, prospective and retrospective studies, and clinical trials that reported effects of space or simulated space conditions on the cardiovascular system were retrieved. Review articles, articles unavailable to the study team, letters to the editor, and clinical trial proposals were excluded. After full-text review, studies that did not reference cardiovascular changes (molecular or physiologic) in response to space travel (real or simulated) were excluded.

Results: Eighteen studies were included, comprised of 14 clinical and 4 basic science studies. On the genetic level, pluripotent stem cells in humans and cardiomyocytes in mice displayed increased beat irregularity, however, an increased incidence of arrhythmia was not reflected in any clinical studies. The physiologic cardiovascular adaptations reflected primarily an increase in heart rate (6-20 beats per minute) during spaceflight, and an increased incidence of orthostatic hypotension after return to sea level. Hemoglobin concentration was also consistently decreased after return to Earth. No consistent change in systolic or diastolic blood pressure was observed during space travel.

Conclusion: The present systematic review demonstrated the possible genetic, hemodynamic, and autonomic changes induced by space travel. Changes in oxygen carrying capacity, blood pressure, and the potential of post-flight orthostatic tachycardia may serve as justification to screen for pre-existing anemic, hypotensive, and tachycardic conditions among astronauts. Nevertheless, space cardiology remains an expanding field of research, and further study is required to examine the effects of space conditions more accurately in humans. Due to the predicted rise in space travel, it is important to better understand the effect of space flight on the cardiovascular health of humans, a component critical for the success of future missions and the long-term well-being of those who travel to space.

Audience Take Away:

- Audience will better understand the potential impact of space travel on cardiovascular health, including the hemodynamic, autonomic and genetic changes due to space travel
- This information can be used by the audience, especially healthcare professionals, as the knowledge presented herein is critical for the screening and caring of astronauts
- The present systematic review summarizes the existing key finding in space cardiology, allowing other researchers to gain a comprehensive understanding of advances in space cardiology and what future directions exist
- Faculty members may also utilize information presented herein for educational purposes and inform students of the present understanding of space cardiology

Biography:

Leo Meller is a first year medical student at UC San Diego School of Medicine. Leo is a recent graduate from UC Irvine, where he earned a bachelor of science degree in Human Biology, graduated from the Campuswide Honors Collegium with Latin Honors, and was inducted to the Phi Beta Kappa honor society. Leo is passionate about research and has co-authored multiple publications and presentations and received grant funding for his work. His research experience includes cardiology, basic science dermatology, medical education, undergraduate biology education, emergency medicine, otolaryngology and ultrasound medicine.

Participants List

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Alireza Malekrah	25
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