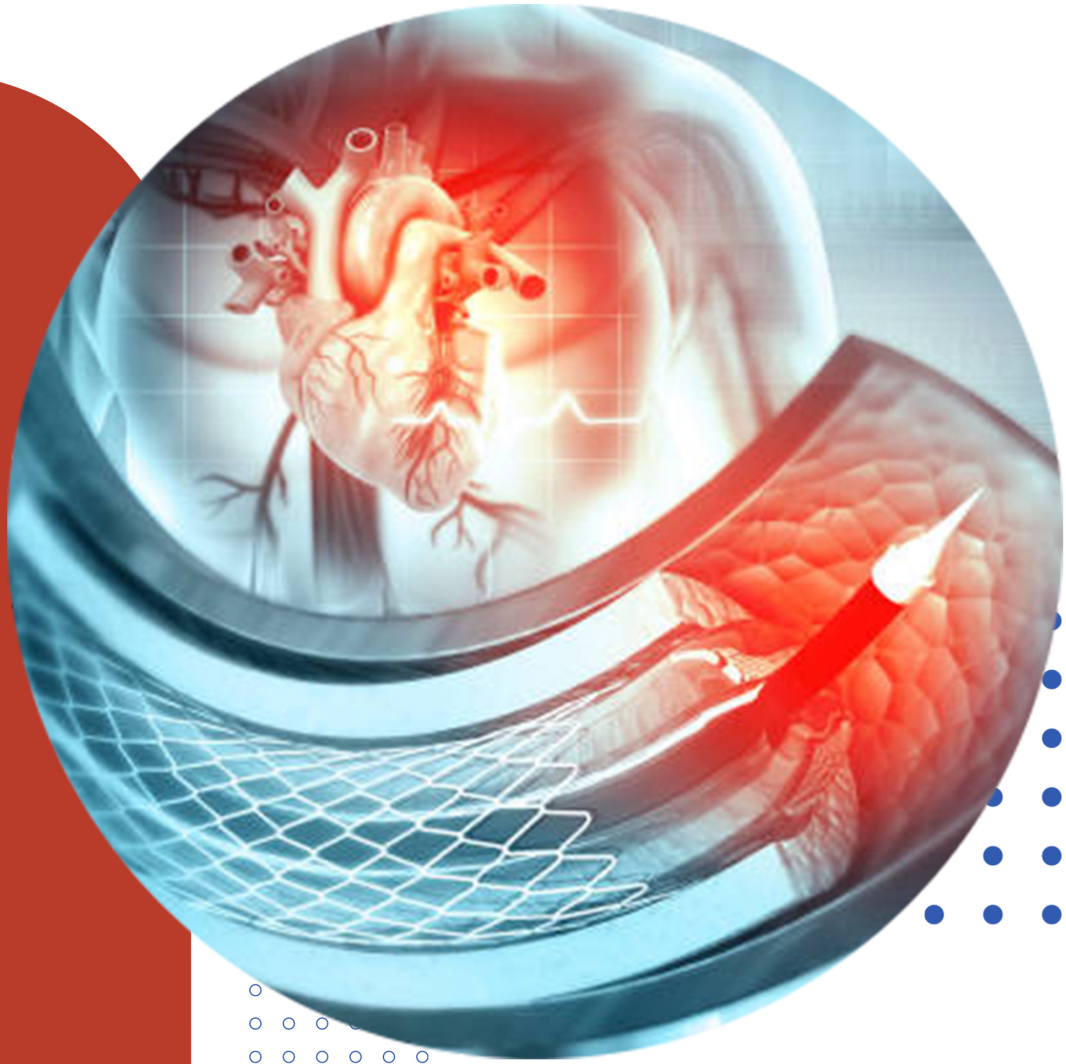
11th International Conference on Interventional Cardiology

October 24-25, 2024
Zurich, Switzerland



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EXHIBITOR









Keynote Forum

Dr.Sergey Suchkov,Current Research: Cardiology (ISSN: 2368-0512), Volume 9

Dr.Sergey Suchkov

The Russian University of Medicine, Moscow, Russia

Personalized and Precision Medicine (PPM) as a Unique Healthcare Model through Biodesign-driven Translational Applications and Cardiology-related Marketing to Secure the Human Healthcare and Biosafety

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

It would be extremely useful to integrate data harvesting from different databanks for further treatment to thus provide more tailored measures for the patients and pre-illness persons-at-risk, resulting in improved patient outcomes, reduced adverse events, and more cost effective use of the latest health care resources including diagnostic (companion ones), preventive and therapeutic (targeted molecular and cellular) etc.

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

(i) a success of trans-catheter aortic valve implantation for patients or persons-at-risk at lower lev-els of surgical risk, or procedures to ablate atrial fibrillation with high degrees of success, and other interventional procedures;

(ii) a global shift from treating disease and preventing the secondary recurrence of cardiovascular events to the primary and even primordial biomarker-driven targeted prevention of cardiovascular risk and the promotion of cardiovascular health;

(iii) the widespread advent of wearable and implantable technologies, allowing continuous moni-toring of cardiovascular parameters;

(iv) nanotechnology and microfluidics, AI and related areas to become the most rapidly emerging areas of cardiovascular research and the most promising technologies for improving health care and health outcomes. Genetic cardiovascular diseases have become the initial targets of industrial-academic collabora-tions to achieve novel breakthroughs in diagnosis and treatment. Cardiomyopathies would pro-vide another case study for the treatment of hypertrophic vases and gaining a better understanding of the genetic underpinnings, commonalties, and differences among cardiomyopathy patients and persons-at-risk.

A major paradigm shift has become the increasing recognition of the potential therapeutic utility of the targeted drugs for cardiovascular diseases, whilst opening up new avenues of therapeutic implications. As PPM continues to drive targeted immunotherapy development and cardiac bi-omarker discovery for healthcare services, cardiologists could indeed see their own PPM-based renaissance very soon.
The above-mentioned areas being an integral part of PPM-related cardiac research is really an in-terdisciplinary field that results from the application of the innovative tools to medicine and has the potential to significantly improve some canonical treatments, prevention, prophylaxis and re-habilitation. Specifically, in the field of PPC, expected to have a great impact in the near future due to its multiple advantages, namely its versatility to adapt a drug to cohorts of patients and/or persons-at-risk. In cardiovascular disease globally, PPM may result in much-needed innovation in the field and has the potential to eventually change the way we treat heart diseases altogether. So, PPC is thus poised to become the next great revolution in the daily practice, as well as in the maintenance of cardiovascular health and the prevention and cure of cardiovascular disease. PPM disrupts stand-ard practice and draws from clinical testing, electronic health records, multi-OMICS profiling, big datasets, and novel analytical methods, to create a person-specific phenotype to identify an optimal intervention with minimal risk.

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

The upgraded and new strategy includes developing an emotive brand, using more social media, and minimizing noise by reducing technical language. By leveraging the business expertise these companies have in creating relationships with consumers, we believe that our collaboration with them will help us accelerate innovation in PPM and PPC by allowing patients and thus the per-sons-at-risk to understand their treatment (canonical, preventive and rehabilitative ones) options deeper and better.

PPM will need to demonstrate that phenotype-based person-specific interventions are superior to the current standard of care and, ultimately, have a population effect by moving the mean on the disease spectrum towards Health. Education, Affordability, and Public Acceptance of the strate-gy all play key roles in its ultimate implementation. This is the reason for developing global scien-tific, clinical, social, and educational projects in the area of PPM-based and PPC-guided clinical cardi-ology to elicit the content of the new branch. In short, PPM will transform the way the physi-cians practice and will shake up the entire pharmaceutical value chain.

Biography

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- American Chemical Society (ACS), USA;
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- ISER (International Society for Eye Research);
- Personalized Medicine Coalition (PMC), Washington, DC, USA

Dr.Fawzy Elbarbry, Current Research: Cardiology (ISSN: 2368-0512), Volume 9

Dr.Fawzy Elbarbry

Pacific University School of Pharmacy, USA

Soluble Epoxide Hydrolase Inhibitory Activity of Natural Isothiocyanates

Background:

Soluble epoxide hydrolase (sEH) is a key enzyme involved in metabolizing endogenously derived fatty acid epoxides, such as epoxyeicosatrienoic acids (EETs) to their corresponding diols which lack the biological activities of their precursor EETs. Therefore, sEH is considered an important therapeutic target in a wide range of human cardiovascular diseases.

Objectives:

This study was undertaken to investigate the potential inhibitory activity of six Isothiocyanates (ITCs) towards sEH enzyme. Additionally, molecular docking simulation was applied to understand the interaction between the enzymes and the ligands tested.

Methods:

Rigid molecular docking was conducted using the human soluble epoxide hydrolase (sEH) crystal structure (3ANS) in Autodock Vina to estimate reversible binding energies of the ITCs. The sEH inhibitory activities of the tested ITCs were tested using a fluorescence-based assay and PHOME as a substrate. The selectivity of the tested sEH inhibitors was tested by measuring the inhibitory effect on microsomal epoxide hydrolase (mEH) and Cytochrome P450 (CYP) enzymes using human liver microsomes.

Results:
Docking resulted in binding poses that suggest the ITCs may be acting by irreversible antagonism. Sulforaphane and phenyl isothiocyanate displayed the strongest sEH inhibitory activity with IC50 values < 10 μM. None of the tested ITC exhibited a significant inhibition of mEH enzyme compared to valpromide, a positive control inhibitor. Allyl and benzyl isothiocyanate appeared to significantly inhibit CYP2D6, whereas only allyl isothiocyanate inhibited the other enzymes. The other ITCs also appeared to lower CYP activity, however their difference was not found to be statistically significant compared to no inhibitor controls.

Conclusion:
These findings indicate that natural ITCs demonstrate promising sEH inhibitory activities, likely by an irreversible mechanism. However, the selectivity of the smaller ITCs, especially against CYP enzymes, may need to be improved to avoid clinically-significant drug interactions.

Biography

Dr. Fawzy Elbarbry, PhD, RPh, BCPS, is a Professor at the Pacific University School of Pharmacy and serves as Chair of the College of Health Professions Faculty and the AACP Curriculum SIG. With expertise in pharmacology and cardiovascular research, Dr. Elbarbry focuses on the therapeutic potential of enzyme inhibition, particularly soluble epoxide hydrolase (sEH), in treating cardiovascular diseases. His recent research explores the inhibitory effects of natural isothiocyanates on sEH, revealing promising implications for drug development. Dr. Elbarbry's work is instrumental in advancing knowledge of enzyme interactions and therapeutic strategies for improving cardiovascular health outcomes.

Dr.Sergey Suchkov, Current Research: Cardiology (ISSN: 2368-0512), Volume 9

Dr.Sergey Suchkov

The Russian University of Medicine, Moscow, Russia

The promising future of the unique translational tool to manage cardiac self-renewal and regeneration to secure the post-infarction period

The approaches securing cardiac regeneration in the post-infarction period are not effective yet and not broadly practiced. The key problem is the identity of cells be born to generate functionally active cardiac myocytes replenishing those being lost during ischemia. With identification of resident cardiac stem cells (rCSCs), it was supposed that the latter might be a crucial source to initiate and prompt myocardial self-renewal and regeneration. In the last years, the focus of research moved towards a concept of the new wave of cardiac myocyte (CM) formation via a scenario of dedifferentiation and proliferation of mature CMs. The observation that rCSCs can be developed inside a pool of immature cardiac cells by formation of "cell-in-cell structures" (CICSs) has enabled us to conclude that CICSs being encapsulated are implicated into mammalian cardiac myogenesis over the entire lifespan. It was demonstrated before that new CMs are generated through formation of CSC-derived transitory amplifying cells (TACs) either in the CM colonies or in a process of intracellular development of CICSs being encapsulated. The analysis of adult rat cardiac cell suspension 1-5, 10, and 14 days after permanent coronary occlusion and ischemia/reperfusion has gifted a researcher a unique phenomenon of TAC release from mature CMs with clear sarcomeric structure. In this case a development of the intracellular CSC occurs within the vacuole pre-formed by CSC-driven sarcolemma-induced invagination. The comparison of TACs exiting the CICS with capsule with TACs just released from non-encapsulated CICS showed that non-encapsulated CICS-derived TACs are characterized by increased expression of cardiac markers and decreased expression of stemness-related markers. Those data for the first time suggest that the development of CSCs inside the encapsulated CICSs is important for cardiac self-renewal and maintenance of CSC-based pool. At the same time, the development of CSCs inside a population of mature CMs is resulting in the formation of pre-cardiac myocytes, which are able to substitute for irreversibly injured CMs, representing the major mechanism of myocardial regeneration. And that, in turn, would open up a green light to secure the targeted management of regenerative cardiac myogenesis. SC therapies are viable alternatives to conventional treatments with substantial therapeutic potential and market opportunities. And the lessons learned from our studies would yield

fundamental biological insights in the repair of ischemic and other myocardial diseases whilst securing the therapeutic resources with the unique future.

Meanwhile, translational research & applications are keeping success in the field elusive in terms of return on investment and in terms of attractiveness to investors within and outside of biopharma and clinical market as well. The SC market itself is predicted to grow to around $12.1 billion by 2024, whilst the development of the SC therapy into further applications has not yet become common practice, and the true potential of regenerative medicine has yet to be demonstrated fully. For instance, the allogeneic or 'off-the-shelf' business model for SC-based therapies is far more akin to current biopharmaceuticals, where the product maintains long-term stability.

Moving forward, we must better characterize SC-based therapy and clinical trials, facilitating decision making across the sector. More basic science investigation is required to elucidate the specific mechanism(s) by which SC promote cardiac regeneration and/or repair, and how cells can be optimally delivered. As our understanding of SC therapy increases, it becomes more likely that clinical trials can produce truly meaningful results with implications for clinical practice.

Based on the new mechanisms and unique phenomenon, we are developing improvement strategies to boost the potency of SC repair and to generate the "next generation" of SC-based and regulatory biomolecules-based (bimodal) therapeutics. Moreover, our strategies should aim at more personalized SC therapies in which individual disease parameters influence the selection of optimal cell type, dosage and delivery approach. Encouraging pre-clinical and clinical studies as one and solid entity reporting significant SC-mediated cardiac regeneration would rapidly pave the way for clinical translation to discover innovative SC-based technologies of the next-step generation and to encourage governments and companies to focus directly on regenerative medicine as a future potential economy and social insurance booster.

As you might see, the observation that CSCs can undergo intracellular development with the formation of "cell-in-cell structure" and subsequent release of transitory amplifying cells with the capacity to differentiate into cardiomyocytes may provide clues for stimulating regenerative cardiomyogenesis. Thus, prospective research should focus on the development of specific responder scores and the identification of prognostic SC- and cardiac damage-related biomarkers to identify patient cohorts who benefit most from distinct SC treatments. Thereby, a higher standardization of study designs and the establishment of a global open-access database for the registration and publication of pre-clinical and clinical trials would greatly improve the comparability and access of obtained data. The worldwide SC therapy market is still in an early stage. But the translational pipelines for rising applications will build the competition among merchants amid the conjecture time frame.

Biography

Sergey Suchkov was born in the City of Astrakhan, Russia, in a family of dynasty medical doctors. In 1980, graduated from Astrakhan State Medical University and awarded with MD. In 1985, maintained his PhD as

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Dr.Sergey Suchkov, Current Research: Cardiology (ISSN: 2368-0512), Volume 9

Dr.Sergey Suchkov

The Russian University of Medicine, Moscow, Russia

Antibody-Proteases as Unique Biomarkers, Potential Targets and Translational Tools of The Next Step Generation for applications in Clinical Cardiology Practice: A new

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

Meanwhile, AIM can be defined as the autoimmune inflammatory process affecting the muscular tissues of the heart (myocardium), and is being transformed in a stepwise manner into dilated cardiomyopathy (DCM). New targeted therapies for autoimmune and inflammatory diseases (including AIM) would require greater understanding of a patient or a person-at-risk to get the therapy personalized for those subsets, or for specific biomarkers and the targets. In this sense, the identification and implementation of diagnostic, predictive and prognostic biomarkers remain the Holy Grail of platforms, algorithms and protocols, which are the crucial for Personalized & Precision Medicine (PPM).

AIM is just one of the chronic organ-specific autoimmune diseases resulting in a destruction of cardiac tissue by different tools, including highly aggressive and destructive autoAbs. A grand role in the development of autoimmunity in AIM, in particular, is the exposure of self-Ags which are encrypted and unavailable to the immune system under physiologic conditions. Meanwhile, CM is one of the most important self-targets in AIM.

The primary damage in AIM progression and evolution which is mediated by anti-CM autoAbs to trigger a release of separate and pathogenically valuable cardiac-associated epitopes into the bloodstream. Those epitopes act as sensitizing factors to generate autoAbs more and more, which, in turn, would drive the autoaggression and thus the disease progression. A subset of patients with AIM and of their symptom-free relatives has circulating heart-reactive autoAbs. These Abs are directed against multiple Ags, some of which are strictly expressed in the myocardium (e.g. organ-specific for the heart), others are expressed in heart and skeletal muscle (e.g. muscle-specific). Abs of IgG class, which are shown to patients in whom

immunosuppression and/or immunomodulation therapy may be beneficial and their relatives at risk.

Moreover, some of these autoAbs may also have a functional role in patients, as suggested by in vitro data as well as by preliminary clinical observations, though further work is in progress to clarify this important issue. And along with canonical Abs, some of the families proven to occur are Abs possessing with catalytic (proteolytic) activity (catAbs or abzymes) and thus to belong to Abs with a feature of functionality! Such Ab-proteases have been found in a series of autoimmune disorders, including multiple sclerosis, autoimmune thyroiditis, etc.

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

Of tremendous value are Ab-proteases directly affecting remodeling of tissues with multilevel architectonics (for instance, myocardium or myelin). The translational potential of this knowledge is in the rational design of new diagnostic tools and new targeted therapeutics based on principles of artificial biocatalysts and Biodesign. And thus Ab-proteases can be programmed and re-programmed to suit the needs of the body metabolism or could be designed for the development of new catalysts with no natural counterparts.

Ab-based therapeutics have entered the central stage of drug discovery as a result of a major shift in focus of many biopharma companies. So, Ab-protease engineering would offer the ability to enhance or alter their sequence-specific activity to expand the clinical utility of the absolutely new tools.

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

What will audience learn from your presentation?

(Try to list 3-5 specific items)

- To learn more about Ab-mediated catalysis (proteolysis) as the biological phenomenon of the next-step generation and its impact in daily practice of cardiac practitioner!
- The presentation would get the audiences armed with new approaches to monitor both clinical and subclinical stages of AIM in precise scenarios!
- In this translational research faculty could use the latter for setting up translational pipelines on one hand and to teach the students and postgraduate physicians on the other one!
- The findings will solve a problem of predictive diagnostics, preventive and rehabilitative measures to be applied for monitoring the AIM patients, the persons-at-risks and to prevent transformation of subclinical stages of AIM into clinical ones!

Biography

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- Personalized Medicine Coalition (PMC), Washington, DC, USA

Dr.Galya Atanasova

Medical University Pleven, Bulgaria

Study of some biomarkers for earlier detection of cardiometabolic risk factors

Background

Biomarkers are useful to identify the early departure from healthy metabolism, which may be very early in life when therapeutic interventions may prove more successful.

Purpose

The purpose of this study is to estimate if there are relations between Apo B/Apo , LDL / HDL, hs-CRP and the metabolic syndrome.

Methods

Prospective study in 82 clinically healthy Bulgarian people 40.2% men and 59.8% women was conducted. Apo B, Apo A1, the ratio Apo B /Apo A1, HDL-cholesterol, LDL-cholesterol and the ratio LDL / HDL are included in the multiple logistic regression analyses.

Results

The box plots for 1-way ANOVA test of Apo B to Apo A1 ratio indicate significant differences between men and women as well as between people with MetS and without MetS.

The shows that with sufficient statistical significance the hypothesis of uniformity of the average ratio LDL / HDL-cholesterol could be rejected.

Variation analysis was performed to determine whether there was a connection between hsCRP and MetS (Fig. 1). The results show a statistically significant difference between the medians of the two groups.

Conclusions

APO B, APO B/ APO A1 ratio, LDL/HDL-cholesterol ratio, hs-CRP, and BMI (especially in females) can be used as indicators for metabolic syndrome.

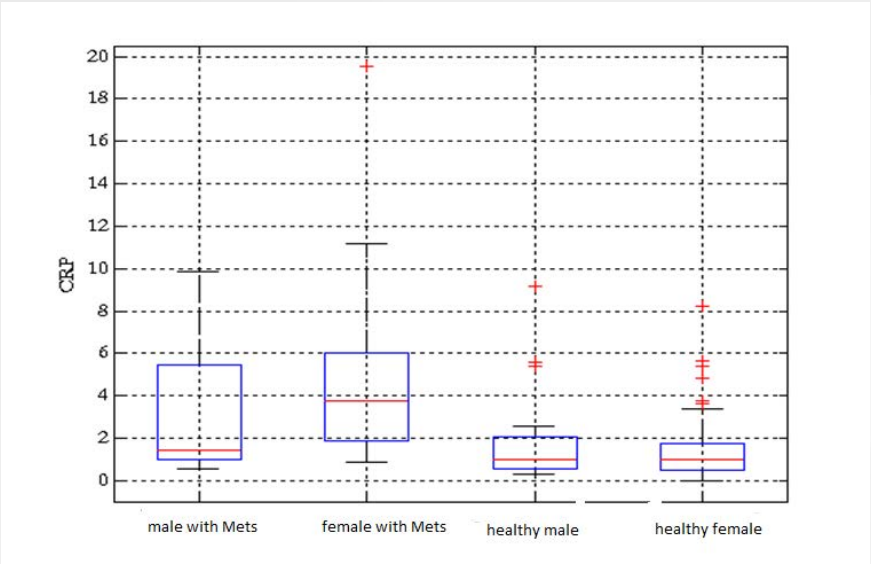


Fig .1 Measured values for hs CRP in mg/l in men and women with and with out Mets.
In men with moderate Mets observed with hs CRP and the circumference of the waist,BMI, LDL-cholestrol,blood glucose and LDL/HDL feedback.
In women METS noted with moderate correlation between hs CRP and body weight, waist circumference and BMI.

Biography

Galya Atanasova completed her Ph.D. training in Cardiology from Department of Cardiology, Pulmonology and Endocrinology at Pleven Medical University, Bulgaria. She is a Cardiologist, assistant prof. at the Department of Internal Medicine, University Hospital Pleven, working as a cardiologist in Emergeny Center Pleven and also as a General Practitioner University, Bulgaria. She specialized in General Medicine from Pleven Medical University, Bulgaria during 1993. She has attended to many international events and presented her research work. She did many researches on metabolic syndrome and myocardial infarction of heart.

Prof.Milen Atanasov, Current Research: Cardiology (ISSN: 2368-0512), Volume 9

Prof.Milen Atanasov

Georgi Benkovski Bulgarian Air Force Academy, Bulgaria

Algorithms for Combat Use of Unmanned Aerial Vehicles Using Unguided Weapons

Nowadays, local conflicts prove the increasing use of unmanned aerial vehicles both for reconnaissance, targeting and destruction of land and sea targets. The implementation of the cutting edge technological achievements leads to the wide variety of unmanned aerial vehicles and an increase in their effectiveness in terms of targets destruction.

Conducting high-intensity combat operations over a long period of time with limited resources shows that the use high precision guided weapons of striking is extremely expensive. For this purpose, the report examines the possibilities of optimizing the mathematical models for the combat use of unguided weapons, with which the accuracy of hitting will approach the one of guided weapons and will lead to the cost reduction.

Biography

Prof. Milen Atanasov Atanasov, DSc, Eng., is a distinguished academic and leader in the field of aviation, currently serving as Dean of the Aviation Faculty at the "Georgi Benkovski" Bulgarian Air Force Academy. With a career spanning over two decades, Prof. Atanasov has held several key roles, including Professor and Head of the Department of Tactics, Armaments, and Navigation Training. He began his academic journey as a PhD candidate at "G. S. Rakovski" Military Academy in Sofia and advanced to Associate Professor by 2015. His extensive experience and leadership in aviation education and defense have significantly contributed to the academy.

Dr.Natraj Setty

Sri Jayadeva Institute of Cardiovascular Sciences and Research Bangalore, Karnataka, India

Dilemma In Percutaneous Coronary Interventions in People Living With HIV with Chronic Total Occlusion (CTO)

Background: Coronary chronic total occlusions (CTOs) present a unique challenge in coronary artery disease, particularly among individuals living with HIV (PLWH). Successful percutaneous coronary intervention (PCI) for CTOs is essential for improving angina and left ventricular function. PLWH face an increased risk of adverse cardiovascular events due to complex interactions between traditional risk factors and the ongoing endothelial dysfunction, immune activation, inflammation, and heightened thrombosis risk associated with HIV infection.

Objective: This prospective observational study aimed to evaluate the procedural success and complications of PCI for CTOs in PLWH.

Methods: From August 2015, we enrolled 25 consecutive PLWH with CTOs in a comprehensive study. Each patient underwent coronary angiography, and clinical presentations were meticulously evaluated. All participants underwent PCI, with clinical follow-up for 5 years.

Results: The study demonstrated a 100% procedural success rate with an uneventful in-hospital course. The mean age was 48 years, and HIV duration was 4.1 years. CTO distribution included 15 patients with 100% LAD occlusion, 5 with 100% RCA occlusion, 1 with 100% LMCA and LAD occlusion, and 4 with 100% LCX occlusion. Various vessels were targeted during PCI, with an average stent size of 3x30mm. The fluoroscopy time averaged 2-3 hours. Three deaths occurred during the 5-year follow-up, unrelated to PCI. No major adverse cardiovascular events were reported, and patients experienced significant symptom relief post-PCI.

Conclusion: PLWH face an increased risk of coronary CTO lesions at a younger age, predominantly during the initial HIV infection phase. PCI emerges as an effective and safe coronary revascularization strategy, providing sustained symptomatic and prognostic benefits. HIV status and highly active antiretroviral therapy did not interfere with revascularization or impact clinical outcomes.

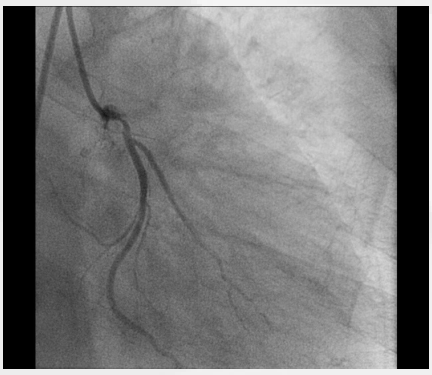


FIG 1A: Left coronary angiography showing Critical LMCA stenosis with ostial LAD total occlusion and severe LCX ostial lesion.



FIG 1B: Left coronary angiography showing final results of LMCA, LAD and LCX.



Figure 2A: Left coronary angiography showing distal LMCA 99%, and ostial LAD total occlusion (ISR).

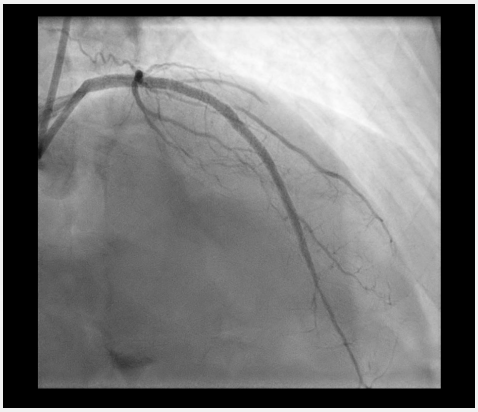


Figure 2B: Left coronary angiography showing post PCI with stenting.

Biography

Dr. H.S. Natraj Setty, MBBS, MD, DM, FICC, FACC, FSCAI, FRCP(G), FRCP(E), FRCP(I), FRCP(L), is an Associate Professor of Cardiology at the Sri Jayadeva Institute of Cardiovascular Sciences and Research, Bangalore. He is a Fellow of the American College of Cardiology and the Royal College of Physicians (G, E, I, & L). He completed his MBBS, MD in general medicine, and DM in cardiology from prestigious institutions in India. With extensive experience in coronary angioplasties, device implantation, and closures, Dr. Setty has performed over 10,000 coronary angioplasty operations and 3,000 non-coronary procedures. His research includes 75 peer-reviewed papers and 35 published abstracts on cardiovascular disease and HIV-related studies. His current project, "Dilemma for Coronary Interventions in Retroviral Positive Patients (HIV) Presenting with Acute Coronary Syndrome," involves 560 intervention cases, with 395 patients undergoing coronary angioplasty with stenting and a 10-year follow-up.

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Dr.Natraj Setty, Current Research: Cardiology (ISSN: 2368-0512), Volume 9

Dr.Natraj Setty

Sri Jayadeva Institute of Cardiovascular Sciences and Research Bangalore, Karnataka, India

FEASIBILITY AND OUTCOMES OF PCI WITH NOVEL TAPERED CORONARY STENT IN PEOPLE LIVING WITH HIV: A PROSPECTIVE, SINGLE-CENTER STUDY WITH LITERATURE REVIEW

Background and Aims: Patients with chronic human immunodeficiency virus (HIV) infection have a high risk of premature coronary atherosclerosis, which is partly attributed to their requirement of a continuous highly active antiretroviral therapy (HAART) regimen. Their high predisposition to various opportunistic infections increases the complexity of percutaneous coronary intervention (PCI). Importantly, people living with HIV have thicker, stiffer, more tapered, and highly tortuous coronary vasculature, stiffness, and tapering compared to non-HIV CAD patients. Currently, there is no evidence of the clinical outcomes of patients with HIV undergoing PCI using tapered stents. This study aimed to assess the clinical outcomes of PCI with the novel tapered Morph sirolimus-eluting coronary stent (SES) system in patients with HIV in a real-world setting.

Methods: A prospective, single-arm, nonrandomized study was performed at a tertiary cardiac care center that included 15 people living with HIV and acute coronary syndromes. PCI was performed in these patients using the study device for de novo coronary lesions with significant size disparity between the reference vessel segments. The cumulative incidence of major adverse cardiovascular events (MACE), defined as a composite of cardiac death, myocardial infarction, and clinically driven target-lesion revascularization (CD-TLR) at the longest available follow-up was considered as the composite safety and effectiveness endpoint.

Results: Since 2018, a total of 15 people living with HIV with a mean age of 50.67 years underwent PCI with the study device for the revascularization of de novo lesions. Despite the patients having cardiac risk factors and presenting with type B or C lesions, 100% procedural and device success was achieved after the index PCI with restoration of myocardial flow (thrombolysis in myocardial infarction [TIMI] flow III). Over a median follow-up period of 40 months, no incidence of MACE or other adverse events was recorded for any of the patients.

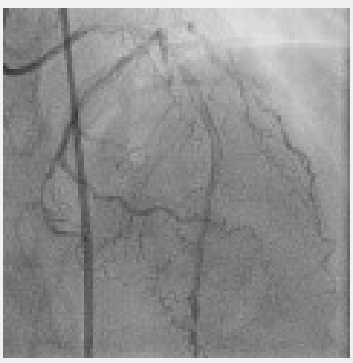
Conclusions: The current study presents fresh evidence on the use of a long, tapered stent —Morp SES — for treating people living with HIV, in whom highly occluded vessels were successfully stented with

favorable long-term outcomes. To the best of our knowledge, this is the first-ever report on obtaining such high success rates of PCI with long-term outcomes using a long, tapered SES in people living with HIV.

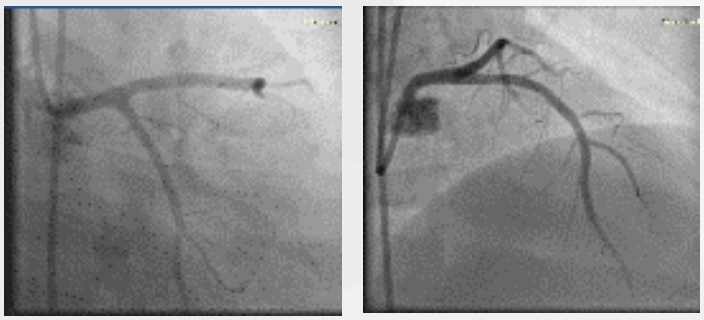
Fig 1. Representative image of the tapered Morph stent device.



Fig 2. Representative coronary angiogram of revascularization of LAD with a 50-mm Morph stent.



Angiography showing TAPERED CORONARY STENT - 3.50-3.00X60 Final result



Biography

Dr. H.S. Natraj Setty, MBBS, MD, DM, FICC, FACC, FSCAI, FRCP(G), FRCP(E), FRCP(I), FRCP(L), is an Associate Professor of Cardiology at the Sri Jayadeva Institute of Cardiovascular Sciences and Research, Bangalore. He is a Fellow of the American College of Cardiology and the Royal College of Physicians (G, E, I, & L). He completed his MBBS, MD in general medicine, and DM in cardiology from prestigious institutions in India. With extensive experience in coronary angioplasties, device implantation, and closures, Dr. Setty has performed over 10,000 coronary angioplasty operations and 3,000 non-coronary procedures. His research includes 75 peer-reviewed papers and 35 published abstracts on cardiovascular disease and HIV-related studies. His current project, "Dilemma for Coronary Interventions in Retroviral Positive Patients (HIV) Presenting with Acute Coronary Syndrome," involves 560 intervention cases, with 395 patients undergoing coronary angioplasty with stenting and a 10-year follow-up.

Maria Borrell,Current Research: Cardiology (ISSN: 2368-0512), Volume 9

Maria Borrell

Sant Pau Institute for Biomedical Research (IIB-Sant Pau), Barcelona, Spain; Ciber -CV, Madrid, Spain

Cholesterol lowering and regulation of inflammation by PCSK9

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

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

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

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

Biography

Dr. Borrell is a senior investigator in the Cardiovascular Program at the Hospital de la Santa Creu i Sant Pau, Barcelona. Prior appointments include a postdoctoral position in the Neurology Department of the Curie Institut, Paris, France studying Huntington's disease. She leads a project based in lipoprotein receptors role in cholesterol metabolism. In the recent years she has been developing a project that analyzes the function of PCSK9 beyond its canonical function in cholesterol lowering. These results have been published in different journals including EHJ, BRIC or CVR and lead to the concession of projects financed by both, the government and the industry.

Aykut Demirkıran,Current Research: Cardiology (ISSN: 2368-0512), Volume 9

Aykut Demirkıran

Tekirdag Namık Kemal University, Department of Cardiology, Turkiye

Ten-year Outcomes Following Revascularization Strategies for Non-ST Segment Elevation Myocardial Infarct and Multivessel Disease

Objectives: There remain conflicting recommendations regarding revascularization strategies for patients with non-ST-segment elevation myocardial infarction (NSTEMI) and multivessel disease (MVD). We aimed to compare the long-term outcomes of revascularization strategies.

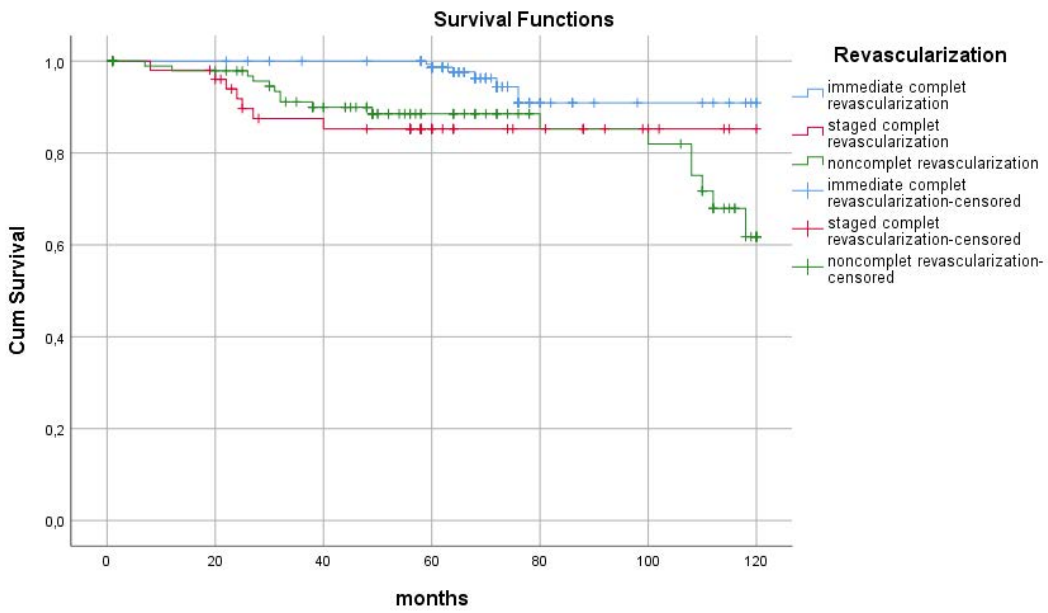
Methods: Patients with similar characteristics were divided into three groups: immediate complete revascularization (ICR), staged complete revascularization (SCR), and non-complete revascularization group (NCR). The SCR group was divided according to the time interval between the index and staged procedures: SCR ≤ 24 hours and SCR > 24 hours. The cardiac composite outcomes included the total number of cardiac deaths and recurrent myocardial infarction during the follow-up period.

Results: 316 of the 11511 scanned patients were included for analysis. It showed that there was a significant difference in risk between SCR and ICR (HR (95% CI): 0.27 (0.15–0.47); p = 0.001). It showed that there was no significant difference between NCR and SCR (HR (95% CI): 1.06 (0.61–1.84); p = 0.832). When the SRC group was divided according to the time interval, the frequency of cardiac composite outcomes was lower in the SCR ≤ 24 group (%16.7 and %47.1; p = 0.038).

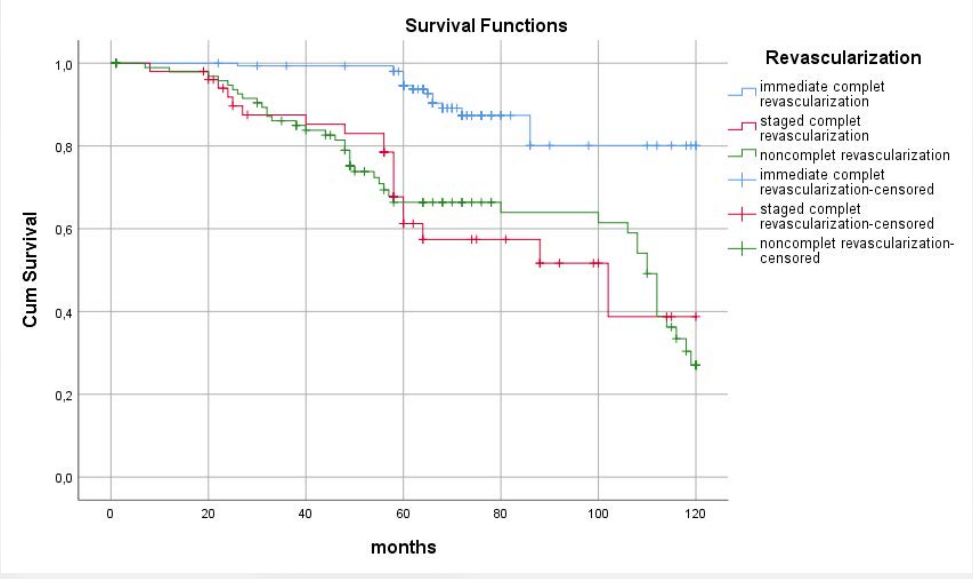
Conclusions: The long-term results of an SCR completed within 24 hours were favorable, like the results of an ICR strategy. Early and complete revascularization may minimize the consequences of incorrect IRA identification.

Figure 1: The primary outcomes are (A) cardiac death, and (B) myocardial infarction. A difference in favor of immediate complete revascularization is presented as a positive value.

A Cardiac Death



B Recurrent Myocardial Infarction



Biography

Dr. Aykut Demirkıran is a cardiologist at Tekirdag Namık Kemal University, Turkiye, specializing in acute coronary syndromes and coronary interventions. His research focuses on optimizing revascularization strategies for non-ST-segment elevation myocardial infarction (NSTEMI) patients with multivessel disease. Dr. Demirkıran's recent study compares immediate, staged, and non-complete revascularization approaches, revealing that early revascularization, particularly staged within 24 hours, significantly improves patient outcomes. His findings contribute valuable insights to ongoing debates in cardiology, advancing evidence-based practices. Widely published, Dr. Demirkıran's work influences treatment protocols, benefiting patient care and the field's understanding of complex coronary interventions.









Poster Presentations

Dr.Huan Pham, Current Research: Cardiology (ISSN: 2368-0512), Volume 9

Dr.Huan Pham

University of Medicine and Pharmacy, USA

Predictive Cardiovascular Imaging and Outcomes in Non-Ischemic Heart Failure with Reduced Ejection Fraction

Background: Not all patients with heart failure with reduced ejection fraction (HFrEF) can receive maximal guideline-directed medical therapy (GDMT) due to adverse effects or prohibitive costs. This prospective study explores the arterial phase, calculated using a novel coronary angiogram technique, as a potential predictive marker of EF improvement in such patients.

Methods: Five patients with newly diagnosed HFrEF were prospectively enrolled, having been cleared of ischemic causes via cardiac catheterization. The arterial phase (AP), defined as the duration from blood inflow to contrast washout, was calculated using an innovative technique. These patients, limited to beta blockers and ACEi/ARB/ARNI due to medication tolerance, were continuously monitored.

Results: All patients demonstrated significant EF improvements, from severe dysfunction (15-20%) to normal or near-normal levels (45-55%), and improved NYHA class from III, IV to I, despite not receiving maximal GDMT. These improvements correlated with a normal arterial phase duration (25±2.6 frames) based on another study.

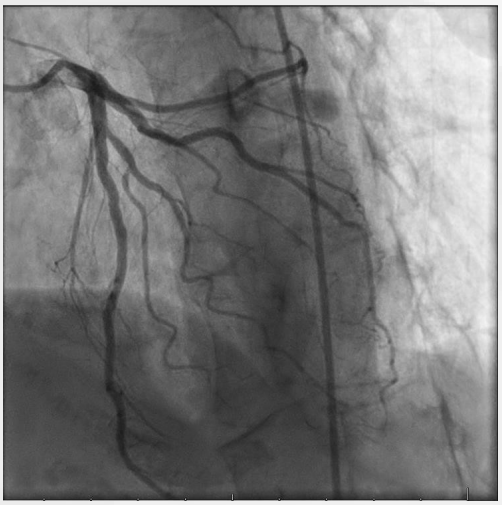
Discussion: The arterial phase may serve as a novel predictive indicator for EF improvement in non-ischemic cardiomyopathy. This study highlights its potential utility in optimizing treatment plans for patients unable to tolerate full GDMT, suggesting a shift towards more personalized heart failure management. This approach could increase clinician confidence in forecasting good prognosis even without full GDMT.

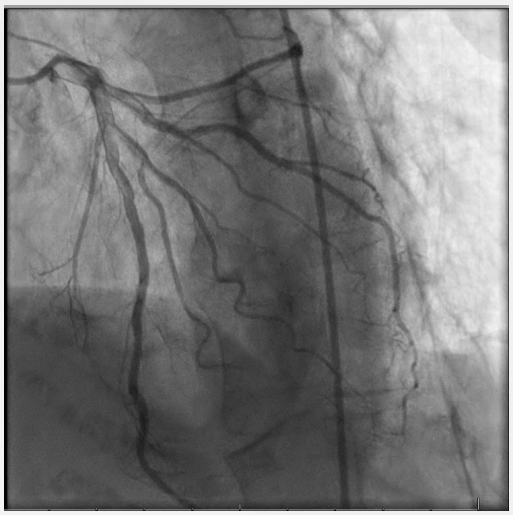
Conclusion: This study indicates that the arterial phase could potentially be used as a predictive marker for EF improvement in HFrEF, particularly valuable in contexts where patients are limited to specific medications due to side effects or costs. Further research is essential to validate these preliminary findings

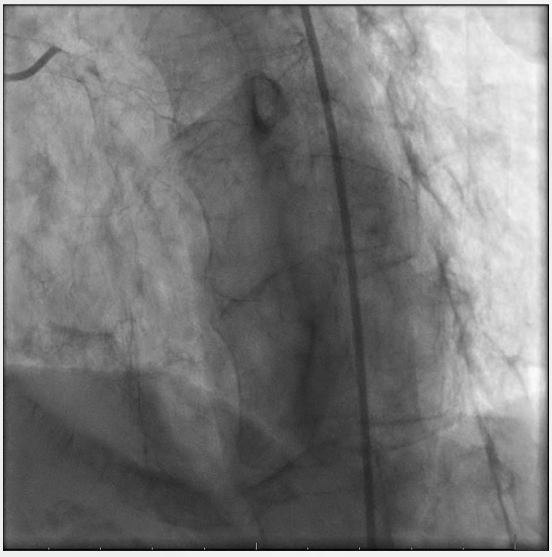
and to explore the implications for heart recovery dynamics under limited GDMT.

The arterial phase (AP) calculation began when the blood moved in and ended when all the contrast was flushed out of the distal arterial vasculature.
Images to show how we can measure arterial phase (AP):
In this patient, arterial phase is calculated from image 47 to image 72. It is equal to 25 frames per second.









Biography

Dr. Huan Pham graduated from the University of Medicine and Pharmacy at Ho Chi Minh City and hails from Ben Tre, Vietnam. He chose Conemaugh for its cultural diversity, broad patient population, affordable cost of living, and the serene surroundings of the valley. Dr. Pham's medical interests center around being an Academic Hospitalist, where he can contribute to both patient care and medical education. Personally, he values work-life balance and hopes to travel extensively, exploring cultures and landscapes around the world. His dedication to medicine, coupled with a love for global experiences, reflects his well-rounded approach to life and work.

Mr Kevin Kang, Current Research: Cardiology (ISSN: 2368-0512), Volume 9

Mr Kevin Kang

University of Pittsburgh Medical Center Hamot, USA

Excellent outcomes in the obese with percutaneous coronary interventional procedures when performed by experienced operators

Severe obesity is considered a risk factor for mortality and bleeding complications during percutaneous coronary intervention. Issues like deep vascular access, increased radiation, grainier fluoroscopic pictures and weight limitations on the fluoroscopy table should limit PCI success in the morbidly obese compared to normal weight patients. However, cardiovascular procedures in BMI over 35 have not been studied taking operator experience into account. An experienced operator is defined by us as having American Board of Internal Medicine, Interventional Cardiology certification. We hypothesize that the procedural results in patients with obesity are operator dependent and excellent results are obtained when procedures can be performed by an experienced operator. Methods: We performed a single center retrospective review of all the patients over the last year with outcomes in 649 patients with BMI less than 35 compared with the outcomes in 174 patients with BMI over 35. The BMI in our over 35
1.18% and bleeding of 1.16% while BMI less than 35 group hadmortality of 1.44% and bleeding of 1.24%. We defined outcomes as excellent if mortality and bleeding risk was each less than 2% based on the criteria discussed in the ACC guidelines and prior national publications of such outcomes from the CathPCI registry. Total mortality and bleeding complications were numerically less in the BMI over 35 group and were less than 2%. Conclusion: Excellent outcomes can be obtained in BMI over 35 patients if an experienced cardiologist performs the procedure.

Biography

Mr. Kevin Kang is a dedicated researcher based in the United States with a focus on percutaneous coronary interventions, particularly within obese patient populations. He is involved in studies assessing procedural outcomes and the impact of operator experience on success rates in high-risk cardiac procedures.

Arun Sharma, Current Research: Cardiology (ISSN: 2368-0512), Volume 9

Arun Sharma

Gurkawal Kaur, Manphool Singhal, PGIMER, Chandigarh, India

MDCT delineation of unique associated lesions in a case of aortopulmonary septal defect

Background:
Aortopulmonary window is a rare congenital heart disease. It is commonly associated with other congenital anomalies including interrupted aortic arch, topsy-turvy heart, patent ductus arteriosus, and septal defect. Present case highlights unique associated lesions in a case of aortopulmonary window.
Case:
CT angiography from a 2 month old infant with cough, fever and respiratory distress revealed a large (type I) aortopulmonary septal defect with coexisting type A interrupted aortic arch. Patent ductus arteriosus was seen reforming the descending thoracic aorta with associated small VSD. Main pulmonary artery was dilated. Double superior vena cava was seen. Additionally, there was presence of unroofed coronary sinus with ostial atresia of the coronary sinus. There was obliteration of the left bronchus with collapse of left lung. Coronary arteries were normal.
Conclusion:
Aortopulmonary septal defect can be isolated or more commonly seen associated with other congenital anomalies. Cardiac venous anomalies are extremely rare in such cases and requires high index of suspicion for preoperative detection.

Biography

Dr Arun Sharma has his expertise in various diagnostic and interventional aspects of cardiovascular radiology. His areas of interest include cardiac radiology, vascular radiology and interventional radiology.

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