Track 7

Day 3 April 17, 2013

7: Current Research in Cardiology

Session Chair
Robert M. Mentzer Jr.
Wayne State University School of Medicine, USA

Session Co-Chair
Ramin Artang
University of Nebraska Medical Center, USA

Session Introduction

Title: Anti-thrombotic treatment in 21st century: Is this the end of warfarin era?
Ramin Artang, University of Nebraska Medical Center, USA

Title: New generation coronary stents: The advantages and its limitations
Ramesh Singh Veriah, University Malaya Medical Centre, Malaysia

Title: Cardiovascular implantable electronic device infections: State-of-the-heart
M Rizwan Sohail, Mayo Clinic College of Medicine, USA

Title: Atrial remodeling in permanent atrial fibrillation: Mechanism and implications
Norbert Jost, University of Szeged, Hungary

Title: Transcatheter aortic valve implantation versus surgical aortic valve replacement for severe aortic stenosis: Results from an intermediate risk propensity-matched population of the Italian OBSERVANT Study
Fulvia Seccareccia, Istituto Superiore di Sanita, Italy

Title: An unusual case of LV myxoma extending through aortic valve presented with antero septal myocardial infarction
Janardhana Rao Babburi, Sri Ramachandra Medical Centre & Research Institute, India

Title: Assessment of regional and global myocardial systolic function by 2D longitudinal speckle tracking in elderly patients with normal LV function
Bhanu Duggal, Grant Medical College & Sir JJ group of Hospitals, India

Title: A comparison of T2MR and P2Y12 platelet activity measurements: Assessment of cardiovascular outcomes in patients on anti-platelet therapy
Rabin Niroula and Lovely Chhabra, St. Vincent Hospital, USA

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Anti-thrombotic treatment in 21st century: Is this the end of warfarin era?

Ramin Artang
University of Nebraska Medical Center, USA

Atrial fibrillation is the most common clinically significant cardiac arrhythmia. It is also a potent risk factor for ischemic stroke, increasing the risk of stroke 5-fold and accounting for approximately 15% of all strokes nationally. The projected number of patients with atrial fibrillation in united states is more 5 million by year 2050. While warfarin has been recommended for stroke prevention since mid 1990s only half of patients with atrial fibrillation are on appropriate treatment due to various challenges with this agent. Within the past 2-3 years 3 new oral anticoagulant have entered the market for primary stroke prevention and several more are in the pipeline. This presentation will review historical perspective of the anticoagulant agents and challenges facing the clinicians with the new agents. Highlights of the 3 major trials with the 3 novel anticoagulants dabigatran, rivaroxaban and apixaban as well as subgroup meta-analysis of the 3 novel agents as compared to the warfarin in regard to the primary and safety outcomes will be presented.

Biography

Artang graduated from the University of Copenhagen, School of Medicine in 1994 after which he continued his clinical work and Ph.D. research studies on cardiovascular disease and pathophysiology of blood clot formation. He completed his training in Cardiology in United States in 2007. Artang is the director of Non Invasive Cardiac and Vascular Imaging at Mercy Medical Center. He also serves as assistant professor of Medicine at the Division of Cardiology at the University of Nebraska Medical Center in Omaha where he is involved in training and education of cardiology fellows and has ongoing research activities. He has published several papers in basic and clinical science and has presented his work in International meetings including the Annual Scientific Session of the American College of Cardiology, European Society of Cardiology and International Society of Thrombosis and Haemostasis on several occasions. The results of his research has been cited more than 50 times by other investigators in International medical journals including the Lancet, Circulation, Heart and Thrombosis and Haemostasis.

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New generation coronary stents: The advantages and its limitations

Ramesh Singh Veriah
University Malaya Medical Centre, Malaysia

Coronary stenting or Percutaneous Coronary Intervention (PCI) is the mainstay of treatment for stenosed coronary arteries. Significant changes have been added to the coronary stent with drug-eluting stents (DES) favoured over bare metal stents. However, the initial DES was still not free of problems. Newer generations stents are more trackable and conformable to the vessel wall. These stents are also less thrombogenic hence reducing the stent thrombosis rates significantly. However, these stents have certain limitations among which include stent shortening. This can be overcome with proper and careful stent deployment emphasizing on good operator technique. Future stents will also see involvement of bifurcating stents and absorbable stents with certain stents already using a biodegradable polymer coating.

Biography

Ramesh Singh Veriah is Consultant Cardiologist and Senior Lecturer in Cardiology and Internal Medicine, Interventional Cardiology Unit, University Malaya Medical Center (UMMC), Kuala Lumpur, Malaysia. Obtained Bachelor of Medicine and Bachelor of Surgery (MBBS) from University of Malaya in 1997. Membership from the Royal College of Physicians, Ireland (MRCP) in February 2002. Involved in many local and international multicenter trials, with main interest in erectile dysfunction (ED) and heart diseases. Won first prize for best research at national level in 2006 at the Malaysian Society of Hypertension (MSH) conference. Main cardiology interest is coronary artery based diseases and preventive and rehabilitative cardiology. Research work on ED was presented at the TCT 2008 in Washington DC. Presented two abstracts in Heart Failure, Nice, France 2009. Presented another abstract in World Congress of Cardiology in Beijing 2010. Invited to give talks in India, Brunei, Seoul and Hanoi (ASEAN Congress of Cardiology). Invited Faculty to many Cardiology Conferences.

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Cardiovascular implantable electronic device infections: State-of-the-heart

M Rizwan Sohail
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Cardiovascular implantable electronic device (CIED) implantation rate has substantially risen in the foregoing decades. Unfortunately, this upsurge in CIED implantation rate has been accompanied by a disproportionate rise in the rate of CIED infections. Device infection is a major complication of CIED implantation, necessitating removal of an infected device followed by systemic antimicrobial therapy and reimplantation of a new system. In this presentation, I will review the current epidemiology, risk factors, diagnostic strategy and contemporary management of CIED infection. Moreover, I will address the vexing question of how to best manage patients with Staphylococcus aureus bacteremia, in the setting of an implanted device, but no overt clinical signs of CIED infection. Lastly, I will discuss the preventive strategies to minimize risk of CIED infection.

Biography

Sohail completed his medical school at The Aga Khan University, Pakistan in 1998 followed by internship and residency at University of Illinois, College of Medicine at Chicago and fellowship training in Infection Diseases at Mayo Clinic, College of Medicine. He is currently an Assistant Professor of Medicine in the Division of Infectious Diseases at Mayo Clinic. Sohail has published over 40 papers in peer-reviewed medical journals and has served as Faculty at Heart Rhythm Society meeting in May 2012. He is a reviewer for several leading medical journals including The New England Journal of Medicine, The Journal of American Collge of Cardiology and Circulaiton. He is currenlty an active member of Council on Quality of Care and Outcomes Research and Council on Clinical Cardiology of the American Heart Association.

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Atrial remodeling in permanent atrial fibrillation: Mechanism and implications

Norbert Jost
University of Szeged, Hungary

Atrial fibrillation (AF) is the most common arrhythmia in clinical practice. It can occur at any age, however, it becomes extremely common in the elderly, with a prevalence approaching more than 20% in patients older than 85 years. AF is associated with a wide range of cardiac and extra-cardiac complications and thereby contributes significantly to morbidity and mortality. Present therapeutic approaches to AF have major limitations, which have inspired substantial efforts to improve our understanding of the mechanisms underlying AF, with the premise that improved knowledge will lead to innovative and improved therapeutic approaches. Our understanding of AF pathophysiology has advanced significantly over the past 10 to 15 years through an increased awareness of the role of "atrial remodeling". Any persistent change in atrial structure or function constitutes atrial remodeling. Both rapid ectopic firing and reentry can maintain AF. Atrial remodeling has the potential to increase the likelihood of ectopic or reentrant activity through a multitude of potential mechanisms. The present lecture reviews the main novel results on atrial tachycardia-induced electrical, structural and contractile remodeling focusing on the underlying pathophysiological and molecular basis of their occurrence. Special attention is paid to novel strategies and targets with therapeutic significance for atrial fibrillation.

Biography

Norbert Jost has completed his Ph.D. in theoretical medical sciences at the age of 29 years from Faculty of Medicine, University of Szeged, Hungary, and postdoctoral studies from Carl Gustav Carus Faculty of Medicine, Unicersity of Technology Dresden, Germany. He supervises the In Vitro Cardiac Electrophysiology Laboratory, Division of Cardiovasculary Pharmacology, Hungarian Academy of Sciences, a team that in the last one and half decades has published more than 40 papers in the field of cardiac, cellular, electrophysiology and pharmacology. In these publications, they described the properties of various transmembrane currents focusing particularly on the modulating effect of several newly developed antiarrhythmic drugs or investigational compounds.

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Transcatheter aortic valve implantation versus surgical aortic valve replacement for severe aortic stenosis: Results from an intermediate risk propensity-matched population of the Italian OBSERVANT Study

Fulvia Seccareccia
Istituto Superiore di Sanita, Italy

Background: Few studies have yielded information on comparative effectiveness of transcatheter aortic valve implantation (TAVI) versus surgical aortic valve replacement (SAVR) procedures in a real-world setting. Aim of this analysis is to describe procedural and post-procedural outcomes in a TAVI/SAVR intermediate risk propensity-matched population.

Methods: OBSERVANT is an observational prospective multicenter cohort study, enrolling AS patients undergoing SAVR or TAVI. Propensity score method was applied to analyze procedural and post-procedural outcomes. Pairs of patients with the same probability score were matched (caliper matching).

Results: The unadjusted enrolled population comprises 1383 SAVR and 725 TAVI patients. Matched population comprised a total of 266 patients (133 patients for each group). A relatively low risk population was selected (mean logistic EuroSCORE 9.4±10.4% vs 8.9±9.5%, SAVR vs TAVI;p=0.650).Thirty-day mortality was 3.8% for both SAVR and TAVI (p=1.000). The incidence of stroke (1.5% SAVR and 0.0% TAVI;p=0.156) and myocardial infarction(0.8% SAVR and 0.8% TAVI;p=1.000) was not statistically different between groups, whereas a higher requirement for blood transfusion was reported across the surgical cohort (49.6% vs 36.1%;p=0.026). A higher incidence of major vascular damage (5.3% vs. 0.0%;p=0.007) and pacemaker implantation (0.8% vs 12.0%;p=0.001) were reported in the TAVI group.

Conclusions: Patients undergoing transcatheter and surgical treatment of severe aortic stenosis are still extremely distinct populations. In the relatively low-risk propensity-matched population analyzed, despite similar procedural and 30-day mortality, SAVR was associated with a higher risk for blood transfusion, whereas TAVI showed a significantly increased rate of vascular damage, permanent AV block and residual aortic valve regurgitation.

Biography

Fulvia Seccareccia graduated in Biological Sciences, at the University of Rome “La Sapienza”, in 1979. She works as Senior Researcher at the Department of Cardio and Cerebrovascular Diseases, National Center of Epidemiology, Surveillance and Health Promotion, Istituto Superiore di Sanità, Rome, Italy. She has been project leader of several projects concerning “Outcome Research”. From 1980 to 2001, her professional experience concerned mainly the epidemiology and prevention of cardiovascular disease. Since 2001, she has been involved in studies concerning comparative effectiveness analyses in cardiology and cardiac surgery. She has published more than 100 papers in reputed International Journals.

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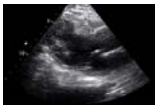
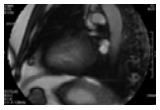
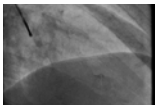
An unusual case of LV myxoma extending through aortic valve presented with antero septal myocardial infarction

Janardhana Rao Babburi
Sri Ramachandra University, India

History

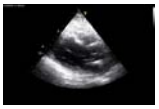
- 37 year young male with no risk factors
- ANGINA and BREATHLESSNESS ---- 2 days
- Delayed presentation ---- AWMI
- Not THROMBOLYSED.




Diagnosis: LV Mass (? Myxoma /? Thrombus) with Embolization


Treatment: Excision of LV Myxoman + SVG grafts to LAD and PDA

Conclusion: This case helps to remind that in a young patient with no cardiac risk factors and alterations in ST segment, one must rule out a Thrombo-embolic source like a cardiac tumor.

Biography

Janardhana Rao Babburi is a consultant and interventional cardiologist at Apollo hospital, Apollo heart institutes, Hyderabad. He did his MBBS from NTR University of health sciences and MD from Manipal University. He also worked as Assistant Professor in NRI medical college and PSIMS and RF College. He is presently doing dm cardiology from Sri Ramachandra University Education, Sri Ramachandra Medical College and Research Institute.

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Assessment of regional and global myocardial systolic function by 2D longitudinal speckle tracking in elderly patients with normal LV function

Bhanu Duggal, Ganesh N and Shivapuje Sanjay Kumar K
Grant Medical College & Sir JJ Group of Hospitals, India

Aging is accompanied by cardiac biological and structural alterations which result in a decrease in diastolic and systolic myocardial functions. This study was conducted to assess ***age-related*** subclinical changes in left ventricular function using ***Strain Imaging*** in healthy elderly individuals with normal left ventricular function by conventional methods (Simpson's, eyeballing). The exclusion criteria were LV myocardial abnormality, valve disease, and atrial fibrillation. Our study included 100 patients divided in 4 groups according to age in years <= 70, 71 to 80, 81 to 90, >= 91; with 25 patients in each group

2D Strain:

Comparison of 2D strain values between groups: Global longitudinal strainwas significantly lower in elderly subjects (<= 70-17.95; 71 to 80-17.10; 81 to 90-16.93; >= 91-15.11) **P value < 0.05.** There was significant difference in longitudinal basal, Longitudinal mid, Longitudinal apical region strain rate, showing decreasing trend in all with increase in age (Table).

Table:- Comparison of Longitudinal basal, mid and apical measurements and Global stain between age-group.

Variables	Age-groups (yrs)	Mean	SD	P value
Longitudinal basal	<= 60	17.90	0.31	<0.05
	61 to 70	17.07	0.56	<0.05
	71 to 80	16.94	0.60	<0.05
	>= 81	15.06	0.65	<0.05
Longitudinal mid	<= 60	17.96	0.33	<0.05
	61 to 70	17.09	0.58	<0.05
	71 to 80	16.94	0.62	<0.05
	>= 81	15.14	0.58	<0.05
Longitudinal apical	<= 60	17.97	0.37	<0.05
	61 to 70	17.15	0.63	<0.05
	71 to 80	16.92	0.62	<0.05
	>= 81	15.12	0.80	<0.05
Global stain	<= 60	17.95	0.30	<0.05
	61 to 70	17.10	0.56	<0.05
	71 to 80	16.93	0.59	<0.05
	>= 81	15.11	0.65	<0.05

Global longitudinal strainwas significantly lower in elderly subjects (<= 70-17.95; 71 to 80-17.10; 81 to 90-16.93; >= 91-15.11) P value < 0.05. There was significant difference in longitudinal basal, Longitudinal mid, Longitudinal apical region strain rate, showing decreasing trend in all with increase in age (Table).

Biography

Bhanu Duggal is faculty at Grant Medical College, India in the Department of Cardiovascular Medicine, but is currently working as a Research Fellow at Cleveland Clinic, USA.

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A comparison of T2MR and P2Y12 platelet activity measurements: Assessment of cardiovascular outcomes in patients on anti-platelet therapy

Rabin Niroula, Lovely Chhabra, Yuka-Marie Vinagre, Walter Massefski and Thomas J Lowery
St. Vincent Hospital, USA

Introduction: Regular monitoring of platelet function in patients on antiplatelet therapy with a history of ischemic heart disease remains a clinical dilemma. Commonly used platelet function assays such as the VerifyNow P2Y12 ADP test primarily rely on a highly-specific reagent formulation using ADP, PGE1 and fibrinogen coated beads. This approach can monitor the pharmacodynamics of P2Y12 platelet receptor inhibitors, but these measurements do not accurately predict the adverse clinical outcomes related to platelet dysfunction, mainly recurrent thrombosis. In our current single-center, prospective study, we used a novel technology to monitor platelet function using a portable T2 Magnetic Resonance (T2MR) device, T2Stat, utilizing small volume blood samples and a reagent cocktail that measures ADP induced platelet mediated clot contraction.

Materials and Methods: In our current investigation, we measured prospectively P2Y12 activity (using VerifyNow assay) and T2MR activity on a set of 30 samples of patients who underwent Plavix response testing. The T2MR reagent formulation was designed to activate platelets by ADP without PGE1 and simultaneously induce fibrin polymerization. Platelet activity was measured by T2MR via platelet-mediated clot contraction. We used this preliminary data first to build a correlation between these two methodologies. We then compared short-term clinical outcomes with the P2Y12 and T2MR data obtained on an additional 22 patient samples, focusing on the 12 patient samples in which the two diagnostic tests differed.

Results: Of 12 patients with discrepant results between two methods, 8 had available meaningful data on short-term clinical outcomes. In all of these 8 patients, we observed that the T2MR activity correlated best with the observed clinical outcomes.

Conclusion: These initial clinical results suggest that the T2MR ADP test has excellent potential to predict the hemostatic state of ADP-induced platelet activity in patients with history of ischemic heart disease. Additional studies will provide further evidence of the potential role of this new technology for the accurate prediction of clinical outcomes.

Biography

Lovely Chhabra: Lovely Chhabra finished his medical school from T.N Medical College, Mumbai, India in 2007. After serving as a junior lecturer in a Govt. Medical school and a medical officer at Apollo Medical Center for two years in India, he then moved to USA to join his residency training at Saint Vincent Hospital (SVH), University of Massachusetts Medical School (UMMS) in 2009 and received his MD degree in 2012. He is currently working as a Chief Medical Resident at SVH, UMMS. During his years of the residency training, he worked on several research projects, especially focusing in the field of Cardiovascular Medicine. Chhabra has authored and co-authored two book chapters and over 20 peer-reviewed journal publications in several international peer-reviewed scientific journals. He has presented his scholarly work at over 20 state, national and international medical society meetings. He has also served on the reviewer boards of several international peer-reviewed medical journals including American Journal of Cardiology, Indian Heart Journal, Hemodialysis International and Indian Pacing and Electrophysiology. His research interests include electrocardiography, pericardial diseases, interatrial conduction blocks, electrocardiographic changes associated with pulmonary disorders and antiplatelet therapy. He is starting his Cardiovascular diseases fellowship training at the University of Connecticut (Hartford Hospital) in July, 2013 and is planning to actively continue on research activities during his future career.

Rabin Niroula: Niroula graduated from Sher-e-Bangla medical college, Bangladesh in 2005 and then joined residency at Saint Vincent Hospital (SVH), University of Massachusetts Medical School (UMMS) in 2009. He received his MD degree in 2012 and is currently working as a Chief Medical Resident at SVH, UMMS. His research interest is in antiplatelet therapy. He will be joining his Hematology-Oncology fellowship training at Roger Williams Medical Center, Boston University, in July, 2013 and will continue his research activities in the field of Hematology-Oncology.

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Uncommon cardiac malformation in a rare genetic disease original case report

Manuela Stoicescu
University of Oradea, Romania

Objective: The main reason for the presentation of this clinical case was to discover the hidden diagnose of a young patient, who has presented a lipothymia during the sports class, while participating in the running trial.

Material and Method: I am presenting the clinical case of a young man aged 24, who during the sports class in the university while he was participating in the running trial; suddenly he gets dizziness, accelerated heart rate, chest pain and a lipothymia, without losing consciousness. His colleagues intend to call the emergency service, but the young man suddenly gets better and refuses to be committed to the hospital. After this incident he presents other two episodes of dizziness and accelerated heart rate, during the sports class, he goes to the family doctor and this send him to a specialist. During the consultation, I founded at the objective examination rhythmic heart sounds HR=82/min, mid systolic click in the mitral area, proto systolic murmur without irradiation, with character of vapor saltation, BP=120/80mmHg, normal vesicular sound. At the general objective examination the following are determined: the thorax shape-pectus excavatum and scoliosis, longline aspect, arachnodactylia, ligamentous hyper laxity, ogival palatal arch, dental malformations, blue sclera and wearing glasses. The EKG shows a sinus rhythm HR=78/min and a minor right branch block, the cardiac Doppler echography shows a prolapse mitral valve, second degree mitral failure and unexpectedly a large interatrial septum aneurism and an interventricular septum aneurism. The thoracoabdominal CT that has been made was within normal limits. The postoperative evolution of the patient was favorable after the interatrial and interventricular septums have recasted.

Result and Discussion: The mitral valve prolapse and the mitral regurgitation are diseases that are frequently observed in the Marfan syndrome, but the association with a interatrial and interventricular septums aneurisms is very uncommon and rare, actually.

Conclusion: 1.The Marfan syndrome represents known but a very rare a genetic disease. 2. The mitral valve prolapse diagnose associated or not with a mitral failure is also usually. 3. The interatrial and interventricular septums aneurisms are very uncommon. 4. The diagnose is possible if the genetic sub layer of the disease is taken into account and specially the presence of the lax connective tissue in a large amount and ligamentous hyperlaxity, which could be valid in the case of interatrial sand interventricular septums, which are usually more lax and with an exaggerated mobility and can produce these kind of changes. 5. The thoracoabdominal CT has not shown any other aneurism in the aorta artery level. 6. The postoperative evolution has be favorable with the recast of the interatrial and interventricular septums.

Biography

Manuela Stoicescu was Assistant Researcher at University of Cluj Napoca and now she is consultant internal medicine physician, Ph.D., Assistant Professor of University of Oradea, Faculty of Medicine and Pharmacy, Medical Disciplines Department, Romania. Also work at Emergency Hospital Internal Medicine Department and Internal Medicine Office. She has published two books, one monograph and papers in reputed journals. She was invited as a speaker at 9 national and 15 International conferences. She is Member of Romanian Society of Internal Medicine, Cardiology, Medical Chemistry, Biochemistry and Member of the Balkan Society of Medicine.

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