

69th Annual Conference of Cardiological Society of India (CSI 2017)

CAD - DIFFERENT STROKES

Prof Naveen Garg, Lucknow

A 52-year-old diabetic presents with chest pain with transient ST elevation on ECG; coronary angiography shows minor plaques

- About 5% patients can have acute myocardial infarction (AMI) with normal coronaries (or mild plaquing). Atherosclerotic CAD is still the commonest cause.
- Clinical setting and awareness of the conditions that mimic infarction can help differentiate the conditions.
- The shape of the ST-segment elevation, the leads involved, other features of the ECG are very helpful. In cases with slightest of doubt, coronary angiography should be done in early presenters.
- Once cardiac etiology is ruled out, other diagnosis should be sought.
- **Clinical possibilities in a patient presenting with chest pain with transient ST elevation with normal coronaries or minor plaquing:** Myocardial infarction with reanalyzed vessel; nonatherosclerotic CAD (hypercoagulable states, coronary embolism, arteritis, coronary artery anomalies, myocardial bridge, substance abuse); coronary vasospasm (Prinzmetal's angina); Takotsubo cardiomyopathy; noncardiac chest pain with transient ST elevation due to some other cause than AMI.
- **Causes of ST elevation other than AMI:** Normal variants; early repolarization; LBBB; LVH; WPW syndrome; hyperkalemia; pulmonary embolism; acute pericarditis; acute myocarditis; Brugada syndrome; abdominal causes; neurogenic: SAH and head injury.

TACKLING AF IN PATIENTS UNDERGOING SURGERY FOR VALVULAR HEART DISEASE

Dr Anil Patwardhan, Mumbai

"Ablate we must, tools may vary"

- STS 2017 Clinical Practice Guidelines: Surgical ablation for AF can be performed without additional

risk of operative mortality or major morbidity, and is recommended at the time of concomitant mitral operations to restore sinus rhythm (*Class I, Level A*) (*Ann Thorac Surg.* 2017;103(1):329-41).

- STS 2017 Clinical Practice Guidelines: Surgical ablation for AF can be performed without additional risk of operative mortality or major morbidity, and is recommended at the time of concomitant isolated AVR, isolated CABG and AVR plus CABG operations to restore sinus rhythm (*Class I, Level B nonrandomized*) (*Ann Thorac Surg.* 2017;103(1):329-41).
- 2017 HRS/EHRA/ECAS Expert Consensus Statement: All patients with symptomatic AF (all types) undergoing other cardiac surgery. Class I indication for mitral valve Sx, Class IIa for AVR/CABG.

MAJOR TRIALS WITH MAJOR IMPACT: COMPASS TRIAL

Dr Pankaj Jariwala, Hyderabad

- Rivaroxaban 2.5 mg b.i.d. + aspirin 100 mg o.d.: Reduces CV death, stroke, MI; increases major bleeding without a significant increase in fatal, intracranial or critical organ bleeding and provides a net clinical benefit.
- No significant benefit of rivaroxaban alone.
- In patients with established stable atherosclerotic disease, rivaroxaban + aspirin resulted in a modest 1.3% absolute risk reduction in CV death, stroke or nonfatal MI, with a trend toward improved mortality. This benefit was offset by a 1.2% increased absolute risk in major bleeding.

Criticism

- Exclusion of 2,320 participants after run-in period (due to failure to adhere/tolerate) raises possibility of selection bias and decreased generalizability.
- Study terminated early due to efficacy of rivaroxaban + aspirin vs. aspirin alone. Thus, the study may overestimate the degree of benefit of rivaroxaban + aspirin and potentially

underestimate the degree of increased bleeding with this therapy.

- The lack of statistical significance of the observed trend towards improved mortality with combination rivaroxaban + aspirin may be due to underpowering for this outcome.

CURRENT CONCEPTS IN RIGHT HEART FAILURE

Dr Mandeep Mehra, USA

- Right heart failure is defined as a clinical syndrome due to an alteration of structure and/or function of the right heart system that leads to suboptimal delivery of blood flow to the pulmonary circulation and/or elevated venous pressures-at rest or with exercise.
- Differences between the RV and LV structure, inform management. The RV is unique in cellular physiology and in therapeutic response from the LV.
- Alterations in metabolism in RV include increased oxygen requirement, lower oxygen extraction reserve and higher dependence on coronary flow and lower glucose-based oxygen consumption/gm of myocardium.
- Key principles: *Considerations and goals*: Increased preload, in and of itself, rarely causes RHF; LV function determines RV function; RV coronary perfusion is dependent on aortic perfusion pressure; AV synchrony and tachycardia control; abnormal RV adaptation (chronic).
- The unique procedures for RV rescue are atrial septostomy, aorto-pulmonary windows and mechanical support-ECMO, Tandem, RV impella.

SEVERE TRIPLE VESSEL DISEASE IN A PATIENT WITH LVEF 20%

Dr Y Vijayachandra Reddy, Chennai

- This is a very high-risk group of CAD but should not be dubbed as “No-Option group” without proper workup.
- Myocardial viability assessment is important as options of management, CABG or PCI, depend on LAD territory viability.
- Nonviable LAD territory, poor target vessels for CABG, severe comorbidities with high surgical score, shift management to CHIP PCI (complex high-risk indicated patient PCI).
- CHIP-PCI demands hemodynamic support at times (IABP, Impella, short-term mechanical circulatory

support). The benefits of revascularization are maximum in this group.

BARIATRIC SURGERY FOR PREVENTION OF CVD AND DIABETES

Dr Surendra Ugale, Hyderabad

- Obesity is associated with increased total and CV mortality due to accelerated atherosclerosis.
- Structural changes in the heart including concentric LV hypertrophy and left atrial enlargement may predispose to the development of heart failure and atrial fibrillation.
- Bariatric surgery produces marked weight loss, with reversal/resolution of coronary risk factors including hypertension, diabetes, dyslipidemia and inflammation; also significant reduction in LV mass and prevention of LA enlargement.
- Surgically-induced weight loss is associated with ~50% reduction in the risk of CV events and 10-year CV mortality.

PH-DIRECTED THERAPY IN COPD

Prof MN Krishnan, Calicut

Routing treatment of COPD with pulmonary hypertension (PH) reducing drugs is controversial. Treatment of COPD with mild/moderate PH with ET1/PDE5 inhibitors is not beneficial and may be harmful. There is evidence that sildenafil in patients with COPD and severe PH with/without right heart failure is beneficial to improve hemodynamics, exercise tolerance and QoL. Further large randomized studies are required to conclusively establish the role of PH-directed therapy in COPD.

UPDATED ASSESSMENT AND TREATMENT OF DIABETES WITH HYPERTENSION

Dr Rajiv Agarwal, New Delhi

Hypertension is common among patients with diabetes. More than 60% of T2DM have hypertension. There is evidence that ASCVD morbidity and mortality have decreased for people with diabetes since 1990 likely due in large part to improvements in BP control.

It is imperative that doctors and patients stay abreast of the most current care recommendations that can lead to improved cardiovascular health for people with diabetes and will ultimately result in better overall health.

Latest updated assessment and treatment of hypertension among people with diabetes, including advances in care, a position statement by the ADA

recommend a lower BP target of <130/80 mmHg in patients with a high risk of cardiovascular disease. The updated recommendations are based on review of 137 clinical trials and meta-analyses including ACCORD BP, ADVANCE BP, HOT and SPRINT trials.

The report “strongly recommends” that home BP monitoring be carried out by all hypertensive patients with diabetes with periodic reporting. New recommendations provide lifestyle management plans for lowering BP that include suggestions for weight loss, a Dietary Approaches to Stop Hypertension (DASH)-style food plan and increased physical activity.

The new ADA 2017 treatment of hypertension in patients with diabetes guideline recommends <130/80 mmHg BP goal for patients with diabetes at high risk of cardiovascular disease. This recommendation further strengthens the use of azilsartan in T2DM with high risk of cardiovascular disease.

Azilsartan is the latest approved ARB, and it has shown its superiority in terms of efficacy, safety and metabolic effects compared to other ARBs in patients with prediabetes and T2DM in a pooled analysis of over 3,800 patients in randomized controlled trials. Evidence suggests that azilsartan exhibits greater BP-lowering effect than valsartan and olmesartan. Data also suggest its beneficial antidiabetic and cardioprotective properties. It is more potent than most other ARBs for inhibiting binding of angiotensin II to human AT1 receptor membrane preparations, and reduces 24-hour BP in hypertensive patients without serious comorbidities more effectively than maximum approved doses of the well-known ARBs olmesartan, valsartan and candesartan.

Azilsartan, thus represents the future of hypertension management in patients with diabetes.

DIAGNOSING HFpEF: CAN WE SIMPLIFY IT?

Dr Partho P Sengupta, USA

- HFpEF is a complex heterogeneous disorder.
- Current schemes for assessing DD and filling pressures have limitations.
- Contemporary HFpEF diagnosis should rely on clinical findings + echo, when in doubt use exercise echo, cardiac cath.
- AI techniques may help automate and improve precision in noninvasive assessment of LV filling pressures.
- Novel screening tools are needed; wavelet transform EKG may be an attractive solution.

HFpEF: Treatment Pearls

- Garden-variety HFpEF: Treat BP, DM, obesity, refer for clinical trial if AF, trial of cardioversion.
- CAD-HFpEF: Treat like HFrEF (BB, ACEI/ARB, revascularization).
- Right heart failure - HFpEF: Diuresis/ultrafiltration, digoxin.
- HCM-HFpEF: Verapamil, diltiazem, long-acting metoprolol.
- Valvular HFpEF: Treat valvular disease if possible.
- High output HFpEF: Treat underlying cause, diuretics/UF.

EXPLAINING CVD EPIDEMIC IN URBANIZED SOUTH ASIANS WORLDWIDE: A NEW CAUSAL SYNTHESIS

Prof Raj Bhopal, Scotland

- Indians in urbanized environments, in common with other South Asians, are at unusually high risk of coronary heart disease (and type 2 diabetes).
- The evidence in support of the main explanations for this observation e.g., insulin resistance or fetal nutritional insufficiency is unconvincing.
- Public health and clinical medicine currently need to focus on the established causes e.g., hypertension and tobacco use.
- Some promising, relatively new explanatory ideas for future research include stiffening of collagen in the vasculature, possibly promoted by dietary components.

IV IRON THERAPY IN HF: IS IT READY FOR IMPLEMENTATION?

Dr Dharmendra Jain, Varanasi

Iron deficiency is a prevalent and clinically relevant comorbidity in up to 50% of patients with chronic heart failure (CHF). Iron deficiency in CHF patients is associated with impaired quality-of-life (QoL), reduced exercise capacity and increased mortality, irrespective of the presence of anemia.

Three randomized trials (CONFIRM-HF, FAIR-HF and EFFECT-HF), of intravenous (IV) ferric carboxymaltose, in the treatment of iron deficiency in CHF patients with reduced left ventricular ejection fraction (LVEF) demonstrated improvement of symptoms, functional capacity and QoL. These beneficial effects were

independent of the presence of anemia. CONFIRM-HF and subsequent meta-analyses indicated that treatment of iron deficiency may reduce the rate of hospitalizations for worsening CHF.

Although, oral iron is available at lower cost than IV iron, its use does not translate into beneficial effects in CHF patients with iron deficiency. Therefore, current guidelines advise establishing evidence-based pharmacological and device therapy to improve symptoms and prognosis in patients with CHF. In addition, screening for iron deficiency is recommended.

According to the ESC guidelines for acute HF and CHF, IV ferric carboxymaltose should be considered for treating iron deficiency in ambulatory symptomatic patients with reduced LVEF in order to alleviate HF symptoms, and to improve exercise capacity and QoL and should be considered as a routine part of HF care.

PHYSICAL ACTIVITY FOR CVD PREVENTION: EVIDENCE-BASED RECOMMENDATIONS

Dr Charan P Lanjewar, Mumbai

- CVD is preventable.
- Consider physical activity for CVD prevention as well as treatment.
- Regular physical activity decreases all-cause mortality and CVD mortality.
- Physical activity is beneficial to all irrespective of age, sex, race, etc.
- Regular physical activity can produce long-term health benefits.
- Health benefits of physical activity outweigh risks of adverse events for all.
- At least 150 minutes a week of moderate aerobic physical activity (30 min for 5 days/week) or 75 minutes a week of vigorous aerobic physical activity (15 min for 5 days/week) is recommended.

RHEUMATIC MITRAL REPAIR: REPLACEMENT IS NOT THE ONLY OPTION

Dr Amit Chandra, Gurugram

- Majority of rheumatic mitral valves in our country are replaced because the durability of rheumatic mitral repair (in terms of freedom from re-operation) is inferior to mechanical valves (82% vs. 95% at 10 years), even though there is considerable survival advantage with repair over replacement

(90% vs. 70% survival at 10 years). Thus, it makes sense to develop a strategy/technique, whereby the durability of rheumatic mitral repair is improved to achieve >90% freedom from re-op to be able to compete with mechanical valves.

- Two newer studies have found that just by selecting patients older than 40 years of age (when the rheumatic process has died down) and an aggressive resection, the investigators were able to achieve a freedom from re-op of 94% and 98% at 10 years, respectively.
- We have developed a comprehensive strategy at Medanta that includes the above mentioned strategy (patient selection and radical resection with reconstruction) in addition to a new technique to obtain large valve opening in stenotic valves called "Medanta correction". This has given us excellent results in 97 patients that we have operated over 5 years with no re-operation.
- Thus, it is possible to have a rheumatic mitral repair with durability equivalent to mechanical valves, and, with the advantages that repair provides to the patient, it is the best that a patient can have.

WHEN AND HOW TO LOOK FOR CVD IN ASYMPTOMATIC DIABETIC PATIENTS?

Dr Dayasagar Rao V, Hyderabad

- Nearly 65% deaths in patients with diabetics are due to CVD (CAD/CVA/HF).
- Degree of atherosclerosis in diabetic patients is more extensive with accelerated progression in poorly-controlled diabetes.
- Do all asymptomatic patients with DM need CV investigations? No. Only patients with following characteristics should be investigated further: Age >40 years; DM >10 years; more number of associated CV risk factors, in addition to DM (HT, hyperlipidemia, strong f/h/o premature CAD, smoker); DM with co-existent vascular disease in other territories (PAD, H/o stroke/carotid bruit, microalbuminuria).
- Should all patients suspected of CAD undergo coronary angiogram? No. Stepwise approach is desirable starting with; resting EKG (pathological Q waves), TMT - positive at low workload <5 METS, CAC score >400 AU, if high probability of CAD is present, stress MPI should be done. In those with high risk perfusion defect, area of perfusion defect >10% of LV, perfusion defects in

multiple vascular territories, E/O stress-induced LV dysfunction.

- ⊖ Those with high risk perfusion defects should be subjected to invasive coronary angiogram in asymptomatic patients with diabetes.

PULMONARY HT: CASE-BASED MANAGEMENT OPTIONS

Dr Suvro Banerjee, Kolkata

A 66-year-old gentleman with severe COPD with PASP 66 mmHg and right HF

- ⊖ Severe pulmonary hypertension is uncommon in COPD. If severe pulmonary hypertension is present in a patient with COPD, other associated causes such as left heart disease, CTEPH or pulmonary arterial hypertension (PAH) need to be excluded.
- ⊖ In patients with COPD and pulmonary hypertension, treatment of COPD remains the cornerstone of management. There is paucity of proven therapies for pulmonary hypertension and right ventricular failure secondary to COPD.
- ⊖ Drugs used in treatment of left heart failure have not been shown to be effective in right heart failure. Diuretics are used to reduce fluid congestion.
- ⊖ Long-term oxygen therapy has been shown to improve survival.
- ⊖ PAH-specific therapies are not recommended currently for pulmonary hypertension associated with chronic lung disease. Lung transplantation or heart lung transplantation remains the last resort.

PULMONARY HYPERTENSION

Dr Rahul Mehrotra, New Delhi

- ⊖ Systematic evaluation of a patient of dyspnea is paramount for early diagnosis of pulmonary hypertension.
- ⊖ Echocardiography is the key investigation for screening of patients suspected of having pulmonary hypertension.
- ⊖ Upfront combination therapy with ambrisentan and tadalafil is the current best approach based on available evidence. Other supportive therapies should be given as per recommendations.

- ⊖ Patients should be systematically followed up with clinical examination, exercise capacity, echocardiography, biomarker (BNP/NT-ProBNP) and right heart catheterization, whenever required.

ADVANCES IN HF MANAGEMENT: FROM DIAGNOSTICS TO THERAPEUTICS - ECHO FOR PROGNOSIS IN HF

Dr John Gorcsan, USA

- ⊖ A comprehensive echo Doppler examination adds prognostic information.
- ⊖ Advances in strain imaging have added to EF in prognosis.
- ⊖ Global longitudinal strain is an important new method to assess cardiac function.

HEMODYNAMIC SUPPORT IN LM INTERVENTION

Dr Seung-Woon Rha, Korea

- ⊖ How to prepare and prevent hemodynamic instability during complex LM intervention? Inotropes and prophylactic IABP.
- ⊖ How to overcome the disastrous complication of hemodynamic compromise developed during the LM intervention? Inotropes, IABP, ECMO, experienced PCI skills or surgical back-up.

PREVENTION OF CVD BEYOND LIPID-LOWERING THERAPY: KEY MESSAGES FROM 2016 ESC GUIDELINES ON CVD PREVENTION

Dr Massimo F Piepoli, Italy

- ⊖ In 2015, the total healthcare expenditure in Europe for CVD was €210 billion a year.
- ⊖ The emphasis in the 2016 European Guidelines on cardiovascular prevention in clinical practice is on: Prevention of CVD at the population level: smoking cessation, healthy diet, physical activity, alcohol abuse, healthy environment; disease specific prevention: atrial fibrillation, CAD, CHF, cerebrovascular disease, peripheral artery disease.
- ⊖ The risk estimation charts classify persons based on the level of risk; low to moderate risk (score <5%): should be offered lifestyle advice to maintain their status; high risk (score ≥5% <10%): should be given intensive lifestyle advice, and may be given drug treatment; very high risk (score ≥10%): drug treatment more frequently required.

