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RIVAROXABAN: SIMPLIFYING THERAPY, SYMBOLIZING COMPLIANCE

Dr Saket Goyal, Kota

In clinical trials, non-vitamin K antagonist oral anticoagulants (NOACs) have demonstrated favorable efficacy and safety profiles vs. vitamin K antagonists (VKAs). They are all noninferior to VKAs with regards to ischemic stroke and systemic embolization, but superior with regard to preventing systemic bleeding, especially intracranial bleed. They have the advantage of once- or twice-daily dosing and also do not require INR monitoring of dosing unlike VKA. But, which NOACs should we choose, as they differ slightly from each other in their pharmacological properties.

Rivaroxaban and edoxaban are given once-daily; apixaban and dabigatran are given twice-daily. Rivaroxaban needs to be given with food to facilitate gut absorption. Renal clearance for dabigatran is 80%, adaxoban 50%, rivaroxaban 33% and apixaban 25%. Dose reduction for NOACs is needed in renal dysfunction.

Dabigatran is not recommended with creatinine clearance (CrCl) <30, and apixaban <15 mL. Although rivaroxaban and edoxaban are not recommended below CrCl of 15 mL, caution should be exercised if CrCl <30 mL. Patients with AF have other comorbidities: hypertension (70-80%), heart failure (40%), coronary disease (30%), diabetes (25%); hence, they are already taking many pills. If they want to reduce their pill burden, rivaroxaban and edoxaban, taken once-daily, would be the preferred choices. Dabigatran is a prodrug, highly acidic in nature and tends to get activated in gastrointestinal (GI) wall. It produces more GI irritation and may enhance GI bleed in those patients with tendency to GI bleed. So, it may be given with food to minimize the gastric irritation. Dabigatran may not be right choice in these subset of patients.

In available choices in India, rivaroxaban is a better choice as compared to other NOACs and it has a broader therapeutic window. It's approved in six Food and Drug Administration (FDA) indications, like reduction of risk of stroke and systemic embolism in nonvalvular atrial fibrillation (AF), treatment of deep-vein thrombosis (DVT) and pulmonary embolism (PE), reduction in the risk of recurrence of DVT and PE, and prophylaxis of DVT following hip or knee replacement surgery, and recently, based on results of the COMPASS trial, the US FDA approved a new indication for rivaroxaban, in conjunction with aspirin, for reducing risk of major adverse cardiac event (MACE) (Cardiovascular [CV] death, myocardial infarction and stroke) in patients with coronary artery disease (CAD) and peripheral artery disease (PAD).

WHICH IS MY PREFERRED P2Y12 INHIBITOR IN ACS? WHY PREFER TICAGRELOR OVER PRASUGREL

Dr Arun Gopi, Kozhikode

Ticagrelor is the only P2Y12 inhibitor to demonstrate a significant reduction in CV death/all-cause mortality, whereas no mortality benefit was seen in TRITON TIMI. Benefits of ticagrelor in PLATO were seen across the entire spectrum of acute coronary syndrome (ACS) unlike prasugrel with no significant difference in major bleeding, fatal bleeding, intracerebral hemorrhage (ICH) or coronary artery bypass grafting (CABG)-related major bleeding compared to clopidogrel.

Benefits of ticagrelor – faster onset and offset of action: Ticagrelor is the only P2Y12 inhibitor approved for use beyond 1 year with aspirin in select patients with high ischemic risk (60 mg).

Limitations of prasugrel – it is recommended only in patients whose coronary anatomy is known. Even in patients undergoing percutaneous coronary intervention (PCI), there was a significant increase in primary safety endpoint (Non-CABG-related TIMI major bleeding), increase in fatal bleeding and CABG-related major bleeding.

ANTICOAGULANTS IN PATIENTS WITHOUT AF BUT WITH HIGH CHADS SCORE

Dr Lawrence Jesuraj M, Coimbatore

The CHA_2DS_2-VASc score is a simple and reliable tool for CV risk stratification and select patients who will benefit the most from intensive treatment aiming to curb the progression and evolution of the atherothrombotic disease. Present evidence vis-à-vis the significant increase in bleeding episodes precludes a recommendation for NAO in patients with elevated CHA_2DS_2-VASc score and no documented AF. The CHA_2DS_2-VASc or $CHADS_2$ scores can be used in patients with chronic CAD and/or PAD to identify

IJCP SUTRA: "Stress and anxiety can lead to memory impairment. Both can interfere with attention and block the formation of new memory or retrieval of old memories."

patients at the highest risk of MACE. Therefore, likely to achieve the greatest benefit of dual pathway inhibition with the combination of rivaroxaban and aspirin compared with aspirin alone. In the clinical trial, the effects of combination therapy with rivaroxaban and aspirin on MACE, bleeding and net clinical benefit were consistent across CHA_2DS_2-VASc and $CHADS_2$ score categories, with the greatest benefit in those with the highest scores.

DEMYSTIFYING MITRACLIP

Dr Sengottuvelu G, Chennai

MitraClip is a breakthrough innovative catheter-based technology that uses a small clip attached to the mitral valve to treat degenerative mitral regurgitation. It is a minimally invasive treatment option for patients with mitral regurgitation who are not good candidates for surgery. The advantage of this minimally invasive procedure compared to open-heart surgery is that it enables faster recovery leading to a better quality of life. It is approved for use in both structural and functional MR. Our early experience has shown good results in high-risk patients. MitraClip is currently approved in India by DCGI and done in a few experienced centers in the country.

THROMBOLYSIS IN STEMI: HOW TO DO IT RIGHT?

Dr HK Chopra, New Delhi

- Challenges of ST-segment elevation myocardial infarction (STEMI) care in India and the real world are enormous, including lack of awareness, poor transport, lack of EMS protocol, poor ambulance service, primary PCI feasible only 12-15%, delay in time from the first medical contact (FMC) after chest discomfort to hospital time, door-to-needle time and door-to-balloon time.
- There is a tremendous need to create Smart Heart App all over India to enhance the awareness on S/S of STEMI, emergency heart ambulance services in the vicinity phone no., instantaneous ECG, mobile ambulance, transfer of ECG by telemedicine or WhatsApp to the heart station or the cardiologists concerned and then instantaneous use of thrombolytic therapy (TLT) and/or PCI depending on the time of reaching the PCI capable centers.
- Rapid diagnosis, early reperfusion, irrespective of TLT or primary PCI are pillars of success in STEMI as "Time is Muscle". Pre-hospital thrombolysis with tenecteplase is the best timely reperfusion therapy. The success rate of tenecteplase and reteplase for thrombolysis in STEMI is 96% in first 3 hours.
- Early tenecteplase in STEMI is strongly recommended as protocol strategy in myocardial salvage window of <3 hours, followed by PCI within 24 hours. (As primary PCI is feasible in only few centers and not practical <90 min.) Minimize the time from chest discomfort to ECG to less than 30 minutes, ECG to drug intervention to less than 60 minutes and drug intervention to PCI to less than 90 minutes. Pharmacoinvasive approach is the only solution for India.
- Consensus on STEMI Management in COVID Era in 2020: PI approach preferred effective solution to reduce STEMI inflicted morbidity and mortality. However, primary PCI is promising gold standard. Selective primary PCI may be recommended in large anterior wall myocardial infarction, cardiogenic shock, hemodynamically unstable patient with malignant arrhythmias, contraindications to TLT.

CHARACTERISTICS AND TREATMENT PRACTICES AMONG PATIENTS WITH JUVENILE RHEUMATIC HEART DISEASE ENROLLED IN A TERTIARY CARE HOSPITAL-BASED REGISTRY

Dr Kunal Mahajan, Shimla

HP-RF/RHD Registry Study is the one of the largest prospective single-center studies of mortality and morbidity in rheumatic heart disease (RHD) patients from India. Clinical RHD is associated with high mortality and morbidity in **young patients at the primes of their lives. Strategies** to make proven percutaneous and surgical valve interventions more accessible are needed to improve the outcome of patients with RHD living in low- and middle-income countries. Patients with RHD seeking tertiary care present with **advanced disease** and the markers of severity are the greatest determinants of poor outcome.

ATRIAL FIBRILLATION BURDEN – DOES IT REALLY MATTER?

Dr Natarajan KU, Kochi

With improvements in wearable and implantable monitoring, improved detection of subclinical AF is a reality. In patients without overt clinical AF, the threshold of AF burden that warrants anticoagulation is not clear. Prolonged durations in subclinical AF (high AF burden), even with borderline CHA_2DS_2-VASc scores, appear to be an independent stroke risk marker. Long-term follow-up of larger population sets will shed

more light and help improve future guidelines. There is emerging data to believe that AF burden in subclinical AF does matter. Arriving at a threshold of subclinical AF burden that merits anticoagulation is a work in progress.

OPTIMIZATION OF PERCUTANEOUS CORONARY INTERVENTION USING OPTICAL COHERENCE TOMOGRAPHY

Dr Deebanshu Gupta, Ahmedabad

Optical coherence tomography (OCT) changes physicians' decisions about PCI strategy as a change in stent length, stent diameter and landing zone. Compared to coronary angiography (CAG), OCT better identifies atherosclerotic lesion morphology and helps select proper stent size, stent length and localize landing zone properly. Angiographic co-registration (ACR) further co-registers angiographic and OCT images together and further increases precision. Thus, post-PCI OCT helps to optimize PCI results.

OPTIMAL INITIATION OF GDMT FOR HFREF PATIENTS: UNMET NEEDS AND HOW DO WE ADDRESS THEM?

Dr Gregg C Fonarow, USA

- Despite evidence-based, guideline-recommended, life-prolonging therapies being available, many eligible patients are not being optimally treated.
- The four pillars of comprehensive disease modifying medical therapy (quadruple therapy) for heart failure with reduced ejection fraction (HFrEF) are: angiotensin receptor neprilysin inhibitor (sacubitril/valsartan), β-blockers, mineralocorticoid receptor antagonists and sodium-glucose cotransporter-2 (SGLT2) inhibitors.
- First-line use of sacubitril/valsartan, rather than starting with angiotensin-converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB), then switching, results in improvement in health status, and greater reductions in CV death/HF hospitalizations.
- A strategy of in-hospital initiation of all 4 therapies at the low guideline-recommended starting doses in patients hospitalized with HFrEF can improve treatment rates, adherence, overcome inertia and lead to large clinical benefits within 30 days.

INTRACORONARY THROMBOLYSIS – WHEN, WHAT AND HOW?

Dr Jayagopal PB, Palakkad

Intracoronary thrombolysis is indicated in: Patients with huge thrombus burden who present early. Young patients with thrombus during primary angioplasty in myocardial infarction (PAMI) and plaque erosion. Patients with ectatic coronaries, large vessels and failed thrombectomy. Patients with a large vessel with failed thrombectomy at the ostium of left anterior descending artery (LAD), either prolapsing into left main coronary artery/left circumflex (LMCA/LCx) and at danger of retrograde migration. Patients with stent thrombosis as an adjunctive during PCI. As an adjunctive in selected cases of PAMI. Intracoronary tenecteplase (TNK), alteplase and streptokinase are all effective. Can be administered through export, clearway and even a guiding catheter. TNK is preferred because of 5-second bolus, ease of administration, efficacy and data.

CAN YOU PREDICT STROKE IN YOUR ACS PATIENTS?

Prof Yash Paul Sharma, Chandigarh

ACS is associated with increased stroke risk, especially in the first 4 weeks. The occurrence of stroke in ACS increases the morbidity and mortality associated with ACS. The key risk factors are older age, atrial fibrillation, female sex, diabetes and heart failure. The pathophysiology is multifactorial, involving LV dysfunction and thrombus, atrial dysfunction, systemic inflammation, accelerated atherosclerosis, carotid plaque instability, etc. STEMI and non-STEMI are associated with heightened risk compared to unstable angina. Cardiogenic shock increases the risk of stroke in ACS; Hemorrhagic stroke during ACS is related to various drugs like antiplatelet, anticoagulants, fibrinolytic, etc. Risk scores that can be used easily to predict risk irrespective of atrial fibrillation are $CHADS_2$, CHA_2DS_2VAS, GRACE scores, etc. Anticoagulation and antiplatelets can reduce the risk of stroke; however, their use increases the risk of bleeding complications; hence, prescriptions to each patient need to be personalized based on individual risk, and close monitoring needs to be done.

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