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IN THIS ISSUE OF ASIAINTERVENTION

**Using physiology in managing ACS with MVD; aggressive lipid-lowering as a hospital protocol; OCT findings in acute STEMI in the young; Ultrathin-strut DES; early in-stent neoatherosclerosis and ACS; hybrid DCB/DES strategy in PCI; machine learning in predicting PCI outcomes; and much more**

**Upendra Kaul**, *Editor-in-Chief*

Dear Colleagues,

Here we come with the promised third issue of the year 2024. The readership and the contribution from authors from all over the region, Europe and the United States is a testimony of our growing popularity. We already have enough material for the next issue slated to come early next year in 2025.

The issue begins with an expert review on the often-debated subject of interventional treatment of acute coronary syndrome (ACS) patients with multivessel disease (MVD). **Nandine Ganzorig, Vijay Kunadian et al** discuss the important issues involved in non-culprit vessels with narrowings of intermediate severity. Compelling findings show fractional flow reserve (FFR)-guided complete percutaneous coronary intervention (PCI) can reduce adverse cardiovascular events, mortality, and repeat revascularisations

in ACS and MVD patients compared to angiography-based PCI. However, FFR is limited in identifying non-flow-limiting vulnerable plaques, which can disadvantage high-risk patients. In this situation, identifying vulnerable plaques with intravascular imaging can help in decision-making and improving outcomes. Integration of these two different methods and other multimodal simplified techniques are discussed in this expert review.

Aggressive lipid-lowering in patients after initial management is always advocated; however, its overall impact on long-term outcomes and how best to deliver it still need more data. In this issue, **Sho Nakao, Toshiaki Mano et al** have, in a retrospective study, compared a hospital lipid-lowering protocol (HLP), consisting of the maximum tolerated dose of statins, ezetimibe and eicosatetraenoic acid, and compared it with the usual care group. They found that implementing HLP for ACS patients improved the 2-year clinical outcome (non-target vessel revascularisation rate) as compared to the usual care group – a finding which was expected but well documented in this study.

PCI for ST-elevation myocardial infarction (STEMI) is a standard of care in the current era. On optical coherence tomography (OCT), the morphology of the culprit vessel has shown variable pathologies like plaque erosion or plaque rupture along with varying degrees of tissue characteristics. In this Indian study by **M.P. Girish, Jamal Yusuf et al**, the authors compare these morphologies in young (<35 years) versus older individuals during PCI. OCT showed that plaque erosion and plaque rupture were the most common underlying STEMI mechanisms in young patients versus older patients, respectively, and that subjects with plaque erosion had greater evidence of subacute thrombus. These are interesting observations which need to be confirmed in larger studies.

Ultrathin-strut drug-eluting stents (DES; <70 µm) are used in a large number of cases because of their ease of use, better trackability and good long-term results. In this issue there are two articles on these stents: one of 65 µm thickness (BioMime) and another even thinner, at 50 µm thickness (Evermine). In the merit-2 trial using the BioMime stent, **I join my colleagues Ashokkumar Thakkar et al** in an all-comers study which included treating multivessel disease, bifurcation lesions and in-stent restenosis. We report a low major adverse cardiovascular events (MACE) rate and an actuarial survival rate of 96% at 5 years, which is satisfactory.

In the article on the Evermine stent, **Sivaprasad Kunjukrishnapilla, Ashokkumar Thakkar et al** report on patients with *de novo* lesions subjected to a clinical follow-up of 2 years, who demonstrated very low MACE and mortality (<1%) rates and no stent thrombosis. A small subset underwent repeat angiography at one year. The core lab angiographic assessment showed in-segment and in-device late lumen loss of  $0.12\pm 0.31$  mm and  $0.17\pm 0.31$  mm, respectively, reaffirming the good angiographic and clinical results. In an editorial on the Evermine stent, **Azfar G. Zaman and Abhishek Kumar** agree with the good performance of this 50 µm DES, but have pointed out some limitations and shortcomings, such as not including left main and calcified lesions, which remain challenging in contemporary PCI. As a result, this stent may not be a workhorse stent.

The next article in this issue is by **Kazuhiro Nakao, Daiju Fukuda et al** on neoatherosclerosis, which is a well-known factor for late stent failure. The authors, by serial OCT evaluation at one year, have shown that in patients with ACS receiving new-generation DES, neoatherosclerosis sets in early as compared to non-ACS patients. These findings are contrary to the popular belief that neoatherosclerosis is always a late event. **Gian Paolo Ussia and Nino Cocco** comment in an editorial that, despite intravascular imaging, neoatherosclerosis remains an enigma and needs more explanations. This early presence in ACS patients suggests that the plaque characteristics at the time of PCI are important contributors. Prevention needs a multifactorial approach, and bioabsorbable stents without recoil and embolisation could be the way to go.

**Jassie Teo, Hafidz Hadi et al**, in a retrospective analysis of patients who underwent a hybrid strategy utilising DES and drug-coated balloons (DCB) in 219 lesions, report a very low rate of target lesion failure with <1% target vessel myocardial infarction and death. This again substantiates the clinical safety and efficacy of this treatment methodology which is increasingly practised. In an editorial comment on the hybrid strategy, “Less metal – the latest evolution in PCI”, **Simon Eccleshall and Bruno Scheller** opine that the use of paclitaxel-eluting DCB, as an adjunct to DES or used alone, is gaining wide acceptance. They emphasise meticulous vessel preparation, with the concept that “the more you gain, the more you get”. An attempt to use DCB-only should be made in complex lesions where PCI is being planned, and having DES as a backup can allow for more aggressive vessel preparation. They support the study by Teo et al as it provides more evidence in favour of the use of DCB.

This is followed by an article on a meta-analysis on machine learning (ML) to predict outcomes post-PCI. **Caitlin Fern Wee, Ching-Hui Sia et al** review a very large cohort taken from 11 studies with a total of 4,943,425 patients. ML models show promise as a useful clinical adjunct to traditional risk stratification scores in predicting outcomes post-PCI. However, significant challenges like missing data need to be addressed before ML can be integrated into clinical practice.

Finally, we have a research correspondence by **Ivan Wong, Michael Kang-Yin Lee et al** on the use of an innovative method of pacing the heart during TAVR using the SENTINEL cerebral protection device.

The editorial team has been working hard to bring this issue to you promptly. We do hope you find the journal educative and helpful in your everyday practice. Your suggestions and comments on the articles will be most appreciated.

Happy reading.