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IN THIS ISSUE OF EUROINTERVENTION

The year in coronary interventions; a mini focus on out-of-hospital cardiac arrest and cardiogenic shock; treating tricuspid valve regurgitation with the Cardioband system; transcatheter interventions for aortic disease; pulmonary ridge coverage in patients with left atrial appendage occlusion, and more...

Davide Capodanno, *Editor-in-Chief*

The theme of these last weeks in #cardiotwitter was, needless to say, the vaccine. In this world devastated by the pandemic, the trials most discussed by cardiologists these days are not about cardiology but those trials that illustrate the efficacy and safety of nucleoside modified RNAs. It almost seems that we can't talk about anything other than COVID-19, and this introductory editorial is, I guess, a further example of this. Still, it is normal, because we live in a suspended world, where uncertainty has become a certainty – but, at least now, something has finally changed in the over-riding mood of this story.

For weeks on social media we have seen a parade of festive injection/vaccination pictures from hospitals all around the world. It would not be overstating the case to say that the jubilant faces of so many colleagues tell stories of hope and rebirth. Obviously, this is just the beginning: the difficulty is coming now, and the challenges of production, distribution and execution of the vaccines are simply pharaonic.

Vaccinating the world, and convincing the doubters to be vaccinated, is something difficult even to imagine – and yet it is so necessary.

I received my first dose of tozinameran earlier in the year. I cannot explain the feelings that crossed my mind on that day when, probably like so many of you, I believe I felt more strongly than ever before the privilege, pride and responsibility of working in healthcare. As I received the call from my hospital, I thought about how important it is to believe in science and evidence, because together they are able to deliver tangible hope after only one year out from the initial sequencing of the virus genome. When collective efforts converge towards a single goal, miracles happen.

So, it's okay to be happy, and it feels good and inspiring to watch so many colleagues around the world who are eager to lead by example and show their satisfaction with the advancement of science. We hope that this enthusiasm is contagious – just that and nothing else. We face the months ahead with renewed confidence and the usual caution, in compliance with the anti-COVID-19 rules.

But that's enough for today. What do we have in store for you in this issue of EuroIntervention? Time to discover it.

We begin with a review by **Mattia Lunardi, Yoshinobu Onuma and colleagues**, in which the authors take a step back from the COVID-19 pandemic and consider the vast number of publications, trials and debates that have marked 2020 in interventional cardiology. This expert overview looks at such areas as advances in the diagnosis of coronary artery disease considering non-invasive diagnostic techniques, invasive imaging and intracoronary plaque composition assessment and coronary physiology. New devices for interventional treatment for coronary artery disease are examined as are specific clinical and procedural settings in the management of non-ST-elevation myocardial infarction. Advances in medical therapy with adjunctive pharmacology for PCI including shortening dual antiplatelet treatment are reviewed, as are other treatment targets. Guideline-directed medical therapy versus revascularisation, PCI versus CABG, these and more are the many topics that made 2020 a memorable – and intellectually challenging – year for the profession.

This issue's mini focus, in coronary interventions, concerns out-of-hospital cardiac arrest and cardiogenic shock. We begin with an article by **Amerjeet S. Banning, Anthony H. Gershlick and colleagues** describing the protocol of the EURO SHOCK trial, which will explore the early use of veno-arterial extracorporeal membrane oxygenation in the acute coronary syndrome patients who experience cardiogenic shock. With no recent trial showing any pharmacological therapy, intervention or device as having an impact on mortality in these patients, EURO SHOCK will explore the early use of extracorporeal membrane oxygenation to see whether there is a clinical benefit and improved morbidity and mortality over standard treatment alone.

The next article in the mini focus concerns the prognostic relevance of angiographic predictors in patients with cardiogenic shock due to acute myocardial infarction. Authors **Pavel Overtchouk, Gilles Montalescot and colleagues** present a sub-analysis of the CULPRIT-SHOCK trial, which looked at whether pre- and post-PCI TIMI flow grade and TIMI myocardial perfusion grade were associated with mortality in these patients. The results of the study showed that only the TIMI myocardial perfusion grade, a myocardial microcirculation surrogate, was a predictor of all-cause mortality after PCI, thus confirming “the idea that microcirculation matters more than the epicardial reperfusion after PCI

in cardiogenic shock patients". This paper is accompanied by an editorial from **Cindy L. Grines and Allison Dupont**.

Continuing with our mini focus, **Alessandro Spirito, Marco Valgimigli and colleagues** critically examine the recommendation that invasive coronary angiography and percutaneous coronary intervention should be used in all patients after out-of-hospital cardiac arrest without an obvious non-cardiac cause. Their meta-analysis considers the burden of cardiovascular mortality and morbidity among PCI patients, in which a large percentage of the mortality is attributable to cardiovascular causes. In out-of-hospital cardiac arrest patients, the burden of ischaemic and bleeding complications was higher, and the PCI success rates lower than among non-out-of-hospital cardiac arrest patients.

Our last article in the mini focus, by **Saraschandra Vallabhajosyula, Gregory W. Barsness and colleagues**, looks at current trends in the use of early PCI assisted by mechanical circulatory support in acute myocardial infarction with cardiogenic shock. Based on a large 10-year cohort of these patients, the authors saw a decrease in the use of mechanical circulatory support, largely due to diminished use of the intra-aortic balloon pump. In general, mechanical circulatory support-assisted PCI was used more often in a sicker population with higher in-hospital mortality. This article is accompanied by an editorial by **Michael Joner and Hendrik B. Sager**.

In interventions for valvular disease and heart failure, **Georg Nickenig, Francesco Maisano and colleagues** present the two-year outcomes of the TRI-REPAIR study looking at the safety and performance of the Cardioband tricuspid valve reconstruction system in the treatment of moderate or greater functional tricuspid regurgitation. With an editorial by **Fabien Praz and Nicolas Brugger**, this study noted device success, with a reduction of tricuspid regurgitation, a decrease of annular dimensions and improvements in quality of life and exercise capacity.

In the section on peripheral interventions, **Massimo Chessa, Mohammad Daud Khan and colleagues** discuss a retrospective analysis of data concerning adult patients with one of the rarest obstructive defects – acquired aortic arch atresia. These patients, from various international centres, all had successful percutaneous recanalisation with covered stents. With a follow-up period of almost four years, this study showed that percutaneous treatment of aortic arch atresia appears feasible, with good long-term survival results.

In another study, **Rebecca J. van Kalsbeek, Johannes M.P.J. Breur and colleagues** report on the first clinical use of the Cook Formula 418 (8 mm) and 535 (8 and 10 mm) stents in the treatment of recurrent coarctation of the aorta in children below 12 kg. Successfully used with few complications, these bare metal stents could provide a durable and effective alternative to surgery and balloon dilatation for native and post-surgical aortic coarctation in these children.

Finally, in interventions for hypertension and stroke, **Xavier Freixa, Manel Sabaté and colleagues** studied the impact of pulmonary ridge coverage in patients being treated for left atrial appendage occlusion. Clinical as well as imaging follow-up showed no difference in outcomes between the patients who had pulmonary ridge coverage or not, though over time those patients with pulmonary ridge coverage presented a lower incidence of device-related thrombosis.

That's it for this February issue of EuroIntervention. Now it's time to delve into the articles themselves.