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IN THIS ISSUE OF EUROINTERVENTION

A EuroIntervention state of the art on valve-in-valve TAVI; an expert review on transseptal punctures; endovascular closure strategies for transfemoral TAVI; long-term outcomes of percutaneous paravalvular leak closure; proximal optimisation technique vs kissing balloon technique for bifurcation lesions; impact of ageing on fractional flow reserve and instantaneous wave-free ratio; early detection of acute myocardial infarction using a deep learning model; incidence of major bleeding events following left atrial appendage occlusion, and more...

Davide Capodanno, *Editor-in-Chief*

Everywhere there are signs of recovery and a new normality in the once whirling world of scientific meetings and events in cardiology. Next month it will be the turn of the PCR London Valves, but for now we are anticipating this upcoming event with some articles dedicated to the theme of the treatment of valvular heart disease, as you will see shortly in our summary.

Some events are timidly regaining their in-person routines and, with almost two years of the pandemic, the effect of seeing human beings in this context is daunting, but clearly beautiful. We are now more familiar with safety protocols, and obviously there are more vaccinated people, so there is a sense of greater relaxation (which

doesn't mean letting your guard down) – an indispensable prerequisite to enjoying the event and making the most of it in terms of knowledge and interaction.

Ah yes, the interaction, I had the pleasure of attending the recent ESC Congress as one of the on-site faculty. Seeing so many colleagues after such a long time convinced me that, while it is true that digital is here to stay, we must make sure not to lose the habit of human contact during these events. Certainly, I saw little or nothing of the traditional ESC Congress (if not the usual lush programming) since there was no audience and our participation essentially consisted in taking part in a television event with scripting, rehearsals, and green screens – no more, no less. A great experience, yes, but it is clearly a different kind of situation than what we had grown accustomed to.

Large-scale congresses cannot afford at this moment to return to the numbers of in-presence participants they used to have, but there must be a trade-off between nothing and everything. In this sense, it is encouraging to see what PCR is doing with the introduction of the “hub, spoke and pod” concept, and to know that the ESC itself is planning an event in hybrid mode next year. We will see what happens, but the outlook is finally positive, after so many dark months.

But let's now dedicate ourselves to the new issue of the Journal because, as always, there is so much to say and read.

As mentioned above, we have several articles in this issue on valves beginning with a EuroIntervention state of the art on transcatheter aortic valve implantation (TAVI) within failed bioprosthetic surgical aortic valves – valve-in-valve TAVI. **Giuseppe Tarantini, Gilbert H.L. Tang and colleagues** provide us with a timely overview of a procedure which, while less invasive than reoperation, is not without its challenges. This article discusses the latest data on patient selection and preprocedural planning, reviews complications and risks including sizing, malposition, prosthesis-patient mismatch and coronary obstruction, and summarises current outcomes and future perspectives. With valve replacement now being performed in a younger patient population than in the past, valve-in-valve TAVI will certainly increase over the coming years.

Endovascular closure strategies for transfemoral TAVI is the subject of an article by **Giuliano Costa, Marco Barbanti and colleagues**. With vascular complications remaining a critical and sometimes life-threatening complication, they compare the effectiveness of using a combined strategy employing an adjunctive plug-based system on top of suture-based devices for endovascular haemostasis. Comparing outcomes using this combined approach to one using simply a suture-based device alone, they show a reduction in 30-day major vascular complications and bleeding along with possible cost savings due to, for instance, the likelihood of early hospital discharge.

With the growing number of interventional procedures of the left heart chambers, there is an increase in the need for transseptal punctures. **Giulio Russo, Francesco Maisano and colleagues** offer an expert look at a technique which, even with the increasing precision provided by the combined use of fluoroscopy and of transoesophageal echocardiography, remains challenging. The article takes an in-depth look at the various procedural steps, equipment, echocardiographic views, and fossa ovalis anatomy, as well as the management of frequent complications – all the elements needed to have a better understanding of performing transseptal punctures.

In the next article, **Leor Perl, Rafael Hirsch and colleagues** look at the question of paravalvular leak closure and address the lack of long-term data concerning outcomes for this procedure. For patients who are considered high or intermediate risk for surgery, the authors found that paravalvular leak closure has an acceptable level of clinical success

with improvement in symptoms, though aortic patients have a better prognosis than mitral ones. This article is accompanied by an editorial by **Thomas Pilgrim and Taishi Okuno**.

Continuing with interventions for valvular disease, **Ilka Ott, Oktay Tutarel and colleagues** consider the management of tricuspid regurgitation in congenitally corrected transposition of the great arteries. In these rare cases, where the right ventricle is the systemic ventricle, it is common to see right ventricle dysfunction and significant regurgitation. The authors have studied whether percutaneous valve repair using the MitraClip system is safe and feasible. The results were promising, and the authors encourage further studies on optimal timing for employing the technique in such circumstances as well as gathering data on long-term outcomes.

Turning to coronary interventions, **Yusuke Watanabe, Ken Kozuma and colleagues** present the PROPOT trial studying the clinical implications of using the proximal optimisation technique for bifurcation lesions. Compared to the conventional kissing balloon technique using optical coherence tomography, the authors found no advantage for the proximal optimisation technique in terms of stent apposition. This article is accompanied by an editorial by **Goran Stankovic and Dejan Milasinovic**.

What is the impact of ageing on fractional flow reserve or instantaneous wave-free ratio indices? This is the subject of a *post hoc* analysis of the ADVISE II trial by **Daniel Candeias Faria, Javier Escaned and colleagues**. The authors found that for the same degree of stenosis severity the discrepancy between FFR and iFR is age-related. The age-dependent increase of fractional flow reserve values is seen to be linked to a decrease in the hyperaemic response of the microcirculation to intravenous adenosine, while the instantaneous wave-free ratio values are seen to remain constant. This article is accompanied by an editorial by **William F. Fearon**.

Delayed or misdiagnosis of acute myocardial infarction is an all-too-common occurrence in the first medical contact. Authors **Wen-Cheng Liu, Chin Lin and colleagues** have developed a deep learning algorithm which strengthens 12-lead electrocardiogram (ECG) interpretation and promises to be an effective diagnostic decision support tool in emergency medical systems while aiding frontline physicians to detect acute myocardial infarction. In a retrospective study, the authors used their deep learning model to reinterpret data from an emergency department by looking at ECGs, coronary angiogram-validated ST-segment elevation myocardial infarction and non-ST-segment elevation myocardial infarction patients and non-acute myocardial infarction patients. They found that their model achieved better diagnostic performance than the actual physicians. By detecting acute myocardial infarction in this timely, precise and reproducible manner, the model could improve overall management of acute myocardial infarction as well as following the evolution of the patient in terms of reperfusion therapy.

We now turn to two very different articles on stroke, the first, by **Adel Aminian, Boris Schmidt and colleagues** discusses the incidence of major bleeding events following left atrial appendage occlusion (LAAO) using the Amplatzer Amulet Observational Post-Market Study. Pre-LAAO major bleeding was associated with an increase in post-LAAO bleeding, which in turn was associated with worse prognosis. Major bleeding following LAAO shows an increase in mortality, but not an increase in stroke, and strategies to limit bleeding events should be carefully employed.

We told you there was one other stroke article, but this is one where the tables are turned. It's easy for us to forget that we can all be on the other side – when the physician becomes the patient. I want to leave you with a viewpoint by **Marko Noc** in which he shares with us the story of his stroke. We promise there is a happy ending and we leave you now to read his story – as well as all the others that make up this edition of EuroIntervention.