MAY 2021

Volume 17, Issue 1

IN THIS ISSUE OF EUROINTERVENTION

The EAPCI Core Curriculum, a mini focus on deep learning in interventional cardiology, antithrombotic drugs in bifurcation PCI; managing non-ST-segment elevation myocardial infarction in the elderly, the LAmbre device for large left atrial appendage occlusion; using paediatric probes for guiding left atrial appendage closure in adults, and more…

Davide Capodanno, *Editor-in-Chief*

If someone had told me last year that a year later I would be here again commenting on a digital version of EuroPCR, I probably would not have believed them. At the time, the first "virtual" EuroPCR was so unusual and therefore so special. There was a clear sentiment of not giving up but also – in a way – a clear desire not to have to repeat the same experience. I mean, online education is a goldmine of opportunities – we have said this many times – but can we really compare this with the beauty of seeing each other in person? The EuroPCR in Paris is simply the EuroPCR in Paris, come on.

However, the pandemic is still among us, and at this point no one dares to make a prediction about when we will return to normal for certain scientific events. We know we will, and that's enough for now. But what was normality? You hardly remember it anymore. Travelling, seeing friends and colleagues, learning something directly from expert

colleagues, previewing the presentation of an international scientific trial, reading the data in a simultaneous publication. Unfortunately, the first few months of this year have been very stingy in terms of science, with much less travel and fewer face-to-face meetings.

Fortunately, the month of May has finally arrived to balance the situation - with EuroPCR and the American College of Cardiology Scientific Session. Two congresses full of new trials, because science somehow goes on, despite all the difficulties. The digital format is here to stay. We are witnessing the spectacular evolution that these events have taken over time, turning into real television shows. Following this introduction, an Editorial by the EuroPCR Course Directors William Wijns and Jean Fajadet will make you aware of the profound digital transformation of EuroPCR. In the words of Jean Fajadet, "It's not evolution, it's revolution". What EuroPCR will we have in 2022, a year from now? Who knows, but in the meantime, let's enjoy this year's, which – by making a virtue of necessity – promises to be creative and fun. And now, without further delay, let's move to the traditional presentation of this issue of the Journal.

We begin with the publication of the EAPCI Core Curriculum, both a consensus and expert review that captures the essence of Europe-wide practice and incorporates key ideas from both the latest ESC guidelines and the EAPCI textbook on percutaneous interventional cardiovascular medicine. **Eric Van Belle, Dariusz Dudek and their colleagues** on the EAPCI committee for education and training present the foundations for a new certification programme with the goal of ensuring the quality of postgraduate education in our speciality which will allow certified specialists to be recognised and work anywhere within the European Community. With 54 chapters covering objectives and knowledge as well as overall competence and experience, this document forms a solid base for the evolution of our speciality.

From this foundation of current practice, our mini focus turns towards the future with a look at deep learning in interventional cardiology. We begin with an article by **Tianming Du, Bo Xu and colleagues** which evaluates the performance of a computer-aided diagnostic system using a deep learning technology to interpret coronary angiography, including the identification of coronary artery segments and the recognition of lesion morphology. The authors illustrate the potential benefits of this type of approach with results that can be considered objective, avoiding human bias, and are accurate, reproducible, analysing angiographic images and identifying lesion features not clearly visible to the human eye. This article is accompanied by an editorial by **James Howard and Hans Reiber**.

The mini focus continues with an article by **Miao Chu, Shengxian Tu and colleagues** on the combination of intravascular optical coherence tomography and artificial intelligence in the characterisation of atherosclerotic plaque. The authors show that artificial intelligence can improve objectivity and reproducibility in the quantification of parameters of plaque composition, such as the identification of inflammatory markers, and that it could potentially be used in intravascular optical coherence tomography-guided PCI as well as in research. This article is accompanied by an editorial by **Thomas W. Johnson and Peter D. O'Kane**.

The possible increased accuracy of a non-hyperaemic algorithm based on deep learning which could predict fractional flow reserve is the subject of the last article in the mini focus by **Frederik M. Zimmermann, Marcel van 't Veer and colleagues**. With no significant difference seen in using deep learning, the authors conclude that maximal hyperaemia remains "a prerequisite for accurate fractional flow reserve assessment". In the future, the

addition of other clinical or anatomical information might increase the diagnostic performance of deep learning models, but this would also add greater complexity to the process.

In coronary interventions, an expert review by **Marco Zimarino, Goran Stankovic and colleagues** discusses the optimal management of antithrombotic drugs in patients undergoing bifurcation PCI, an intervention associated with an increased risk of thrombotic events. Up until now there has been no consensus on this issue. The authors, writing for the European Bifurcation Club, answer this clear and unmet need by a careful analysis of existing literature, experience and evidence to propose a uniform clinical and therapeutic approach.

In an article by **Adam de Belder, David Hildick-Smith and colleagues**, the management of non-ST-segment elevation myocardial infarction in very elderly patients is explored. They discuss the RINCAL randomised trial, which was designed to compare an intervention-guided strategy with optimal medical therapy to optimal medical therapy alone. No significant difference in the combined primary endpoint of all-cause mortality and non-fatal myocardial reinfarction after either strategy was seen. However, the authors note that the trial was stopped early due to slow recruitment and was thus underpowered to provide any conclusive evidence. This article is accompanied by an editorial by **Stefano Savonitto and Stefano De Servi**.

In coronary interventions we continue with two short reports. The first, by **Kuniaki Takahashi, Patrick W. Serruys and colleagues**, considers the CABG SYNTAX score and the possible prognostic value this score could have in patients with prior CABG, assisting in long-term risk stratification to identify which patients would be at high risk for future adverse events. The second short report is by **John Nan, Rajiv Gulati and colleagues**. Stent underexpansion remains a challenging clinical situation with no clear treatment option. Here the authors look at a possible approach using excimer laser coronary angioplasty with concurrent contrast injection, an approach which shows some promise, but remains complex.

In interventions for hypertension and stroke, **Muhammed Gerçek, Claudius Jacobshagen and colleagues** examine acute deformations of the right coronary artery after interventional treatment of tricuspid regurgitation using the Cardioband system. The authors conclude that this is essentially an uneventful clinical situation, a transient phenomenon. With post-interventional recovery and complete resolution of the deformation, in the absence of flow impairment or vascular damage, they recommend "watchful waiting" in order to avoid further and unnecessary coronary interventions.

The novel LAmbre device was designed for use in large left atrial appendage occlusions with additional stabilisation features allowing it to be used where the deployment of other, existing devices would not be possible. A multicentre retrospective registry, presented by **Chak-yu So, Yat-yin Lam and colleagues**, shows that using the device is feasible and reasonably safe, though long-term data as well as further evidence regarding its efficacy in preventing stroke are still needed.

Finally, **Moniek Maarse, Lucas V.A. Boersma and colleagues** examine the use of paediatric probes for adults in the guidance of left atrial appendage closure. Paediatric probes, which are better tolerated while offering acceptable imaging quality, might avoid the use of general anaesthesia in these interventions. This is often needed when standard size probes are employed, and could offer reduced cost and shorter procedural times.

Let's delve into the new edition now, but first I give the floor to the EuroPCR Course Directors.