



Úvodník | Editorial

Novel methods in interventional cardiology and cardiac surgery

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Interventional cardiology is a very fast developing speciality of cardiology, offering today a broad spectrum of therapies, and still allowing for a close cooperation with cardiac surgeons. Recent developments in interventions are ongoing in many fields and cover, for instance, the introduction of new antiplatelet drugs and strategies of percutaneous coronary interventions (PCI) in acute myocardial infarction [1], left main and bifurcation stenting [2,3], percutaneous heart valve therapy [4–6], as well as device closure of the left atrial appendage [7]. This special issue of *Cor et Vasa* is therefore focused on the novel or relatively novel methods or techniques that have evolved recently and are practically used in cardiac interventions. The issue was prepared by authors from the Czech interventional and cardiosurgical centres. Before we summarize articles which are presented in this issue, we would like to comment on some of the topics mentioned above.

New antiplatelet drugs and strategies of percutaneous coronary interventions

Percutaneous coronary intervention is a well established treatment in patients with myocardial infarction

with ST-segment elevations. The practice of using coronary stents, antiplatelet thienopyridines and heparines as well as IIb/IIIa inhibitors is well established, but several questions still remain unanswered and lead to the introduction of several new drugs which should prove beneficial: prasugrel [8], more potent thienopyridine platelet inhibitor with rapid onset, ticagrelor [9], a non-thienopyridine inhibitor of P2Y₁₂ adenosine phosphate receptor blocker, and bivalirudin – direct thrombin inhibitor [10].

Coronary interventions

Surgical approach to unprotected left main coronary artery disease was regarded as the treatment of choice for many years, but current experience from several registries and clinical trials have made PCI an alternative revascularization therapy for such patients. When compared to surgery, the only difference is the rate of repeat revascularization, otherwise composite outcome of death, myocardial infarction and stroke is similar in surgical as well as PCI approach [2]. Also bifurcation lesions remain among challenging lesions for PCI's, proper

classification like recently described and clinically oriented DINO classification [3] is crucial for choosing the right PCI techniques. The practical overview of Želízko et al. in this issue of *Cor et Vasa* very well demonstrates the complexity of coronary bifurcations treatment as one of the remaining challenges in interventional cardiology. More relevant view on the coronary arteries and coronary circulation can be obtained from two other articles. Concept of functional revascularization described by Mates et al. seems to be the most appropriate and clinically relevant approach to revascularization in patients with stable or stabilized coronary lesions. Fractional flow reserve measurement received the strongest recommendation from European Society of Cardiology (Class I, level of evidence A) for defining the ischemic myocardium. Information coming from the optical coherent tomography as the most precise method of morphologic imaging, described in article of Kaňovský et al., provides generally a broader understanding of coronary artery disease as well as the results of coronary artery stenting.

Percutaneous heart valve therapy

Percutaneous heart valve therapy includes transcatheter aortic valve implantation (TAVI) in patients with aortic stenosis [4], mitral valve repair (MVR) in patients with mitral regurgitation [5,6], as well as pulmonary valve implantation. With more than 50 000 implantations worldwide, TAVI has been shown to be a viable alternative to surgery for patients with symptomatic severe aortic stenosis at high risk for open heart surgery and details of PARTNER Trial have been discussed in the last issue of *Cor et Vasa* [11]. Czech TAVI Registry follows almost all the TAVI procedures performed in the Czech Republic since the beginning of the program. Design of the Registry described in the article of Kala et al. was established in collaboration with Carlo di Mario, the former President of the European Association of PCI (EAPCI).

Closure of the left atrial appendage

The structural therapy for the left atrial appendage closure has been developed and introduced to clinical practice recently – the WATCHMAN device was compared with warfarin therapy in the PROTECT-AF Trial [7]. There was no difference in the ischemic strokes rates in both groups and long-term follow-up will definitely show, whether beneficial effect of device will continue because warfarin events are likely to accumulate in longer time. Also in this first special issue of *Cor et Vasa*, Štásek et al. discuss the therapeutic options to prevent the risk of systemic embolization in patients with chronic atrial fibrillation. Especially in patients with contraindication to chronic anticoagulation therapy left atrial appendage closure might be the therapy of choice.

Paravalvular leaks, hybrid revascularization, renal denervation, aortic dissection

Other topics which we present in this special issue of *Cor et Vasa* include a manuscript from Branny et al. which focuses on the paravalvular leaks management from diagnosis to interventional treatment; an article by Horák et al. which provides us with the cardiologist's view on hybrid revascularization, i.e. the combined surgical and interventional therapy, and a manuscript of Poloczek et al. which extends the insight into the rather promising interventional therapy – renal denervation in the treatment of resistant arterial hypertension. Finally, Němec et al. provide us with a sophisticated and interesting comparison of two therapeutic approaches to acute aortic dissections. Less invasive aortic valve sparing operation was associated with excellent results during mid-term follow-up.

Summary

In conclusion, we can hope that interventional cardiology innovations will continue to evolve and new methods will broaden the practice of current procedures, and will improve all options of nonsurgical treatment available for our patients. Some of them are presented in the upcoming articles of Czech interventional cardiologists, who all use those methods in their daily work achieving successes not only in elective cases, but also in acute patients.

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