EXPERT REVIEWS

TCTAP 2011: connecting East and West for interventional societies

Expert Rev. Cardiovasc. Ther. 9(8), 983–985 (2011)

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16th Angioplasty Summit TCTAP
Seoul, Korea, 27–29 April 2011

The Angioplasty Summit TCTAP is an international conference held annually at the end of April in Seoul, Korea that focuses on interventional cardiology. Over the past two decades, this meeting has played an integral part in the Asia–Pacific region on educating physicians and other healthcare professionals who are interested in this field. It has become a very useful opportunity for them to catch up with cutting-edge techniques, overviews and clinical investigations from all over the world.

The Angioplasty Summit Transcatheter Cardiovascular Therapeutics Asia Pacific (TCTAP) organized by the Cardiovascular Research Foundation (CVRF) presented the latest trials and treatment trends in interventional cardiology. The topics covered were the latest basic and clinical investigations, and the newest interventional techniques for the treatment of coronary, peripheral and carotid arteries and structural heart disease. The left main and bifurcation summit covered up-to-date results of recent clinical trials of treating left main and bifurcation lesions. 'Case-based learning' and 'focused reviews' concentrated on fractional flow reserve (FFR), noninvasive imaging, antiplatelet issues and transcatheter valve therapy.

Late-breaking trials

Mark Burket (University of Toledo Medical Center, OH, USA) presented 24-month updated data from the Zilver PTX Randomized Trial of Paclitaxel-Eluting Stents for Femoropopliteal Artery Disease. The Zilver® PTX® stent with a polymer-free paclitaxel coating is the first drug-eluting stent approved (currently CE marked, investigational in the USA and Japan) for the superficial femoral artery. This multicenter, multinational, prospective randomized trial compared the safety and effectiveness of the Zilver study to balloon angioplasty (PTA) and bare-metal stenting. Burket and colleagues randomized symptomatic patients with superficial femoral artery lesions (*de novo* or non-in-stent restenosis) to PTA or Zilver PTX stent placement. A total of 479 patients were enrolled at 55 institutions in the USA, Japan and Germany, with 241 patients randomized to the Zilver PTX group and 238 to the PTA group. A 24-month follow-up is available for 278 patients, showing an 86.6% event-free survival rate and a 74.8% patency rate. The randomized comparison of provisional stenting with Zilver PTX versus Zilver bare-metal stenting continues to demonstrate significant paclitaxel-coating benefits at 24 months, with patency rates of 81.2 and 62.7%, respectively($p < 0.01$). Burket concluded that the results of this study support the safety and effectiveness of the Zilver PTX drug-eluting peripheral stent.

Young-Hak Kim (Asan Medical Center, Seoul, Korea) presented the impact of angiographic complete revascularization (CR) in patients with multivessel coronary disease. Kim evaluated the long-term clinical impact of angiographic CR, as compared with incomplete revascularization (IR) in patients receiving percutaneous coronary intervention (PCI) with drug-eluting stent (DES) or coronary artery bypass grafting (CABG) for multivessel disease. They included consecutive 1914 patients undergoing DES implantation (1400 patients) or CABG (514 patients). Kim used four definitions of CR depending on the angiographic assessment in the SYNTAX segments. Angiographic CR-1

 10.1586/ERC.11.86 ISSN 1477-9072

was defined as angioplasty or grafting in all diseased coronary segments (≥1.5 mm), angiographic CR-2 as revascularization in all diseased segments ≥2.5 mm, proximal CR as revascularization in the diseased proximal arteries and multivessel IR as incomplete revascularization in ≥2 diseased vessels. Over 5 years, CR patients had comparable incidences of death (8.9 vs 8.9%; adjusted hazard ratio [HR]: 1.04; 95% CI: 0.76–1.43; p = 0.81) and composite of death, MI and stroke (12.1 vs 11.9%; adjusted HR: 1.04; 95% CI: 0.79–1.36; p = 0.80) and composite of death, MI, stroke and repeat revascularization (22.4 vs 24.9%; adjusted HR: 0.91; 95% CI: 0.75–1.10; p = 0.32) compared with IR patients according to the angiographic CR-1 definition. Angiographic CR-2 and proximal CR were also not associated with the risks of the composite of death, MI and stroke and the composite of death, MI, stroke and repeat revascularization. However, 368 patients (19.2%) with multivessel IR had a tendency of higher risk of death, MI, stroke or repeat revascularization (30.3 vs 22.1%; adjusted HR: 1.27; 95% CI: 0.97–1.66; p = 0.079) than those without multivessel IR. These analyses showed that anatomical CR for all angiographic stenosis did not improve the long-term clinical outcomes after either PCI or CABG in patients with multivessel disease. However, in patients with extensive coronary artery disease, multivessel IR may be associated with unfavorable long-term clinical outcomes.

Left main & bifurcation summit

As one of the pioneers in coronary intervention, Antonio Colombo (EMO GVM Centro Cuore Columbus, San Raffaele Hospital, Italy) reviewed the systematic approach of bifurcation lesions, including distal left main bifurcation lesions. Based on the important randomized trials about bifurcation lesion stenting, such as the Coronary Bifurcations: the Application of the Crushing Technique Using Sirolimus-Eluting Stents (CACTUS) study and the British Bifurcation Coronary Study: Old, New, and Evolving Strategies (BBC), the provisional T-stent strategy should be the default treatment for most bifurcation lesions; however, there may be subtypes of coronary bifurcation that nonetheless merit a systematic two-stent strategy (Culotte, Classic Crushing, T-stenting and V-stenting). It means that according to the lesion location, lesion length of the side branch, especially, bifurcation lesion type, angulation of the side branch and the operator's preference, different stenting techniques will be used for the optimal management strategy.

Seung-Jung Park (Asan Medical Center, Seoul, Korea) presented the recent results of the Premier of Randomized Comparison of Bypass Surgery versus Angioplasty Using Sirolimus-Eluting Stent in Patients with Left Main Coronary Artery Disease (PRECOMBAT) study and the future direction of PCI for left main coronary artery (LMCA) stenosis [1]. The study randomly assigned patients with unprotected LMCA stenosis to undergo CABG (300 patients) or PCI with sirolimus-eluting stents (300 patients). Using a wide margin for noninferiority, they compared the groups with respect to the primary composite end point of major adverse cardiac or cerebrovascular events (death from any cause, MI, stroke or ischemia-driven target-vessel revascularization) at 1 year. Event rates at 2 years were also compared between the two groups. The study presented that the primary end point occurred in 26 patients assigned to PCI compared with 20 patients assigned to CABG (cumulative event rate: 8.7 vs 6.7%; absolute risk difference: two percentage points; 95% CI: -1.6 to 5.6; p = 0.01 for noninferiority). By 2 years, the primary end point had occurred in 36 patients in the PCI group compared with 24 in the CABG group (cumulative event rate: 12.2 vs 8.1%; hazard ratio (HR) with PCI: 1.5; 95% CI: 0.9–2.52; p = 0.12). The composite rate of death, MI, or stroke at 2 years occurred in 13 and 14 patients in the two groups, respectively (cumulative event rate: 4.4 and 4.7%, respectively; HR: 0.92; 95% CI: 0.43–1.96; p = 0.83). Ischemia-driven target-vessel revascularization occurred in 26 patients in the PCI group compared with 12 patients in the CABG group (cumulative event rate: 9 vs 4.2%; HR: 2.18; 95% CI: 1.1–4.32; p = 0.02). Therefore, Park concluded that in this randomized trial involving patients with unprotected LMCA stenosis, PCI with sirolimus-eluting stents was shown to be noninferior to CABG with respect to major adverse cardiac or cerebrovascular events. He expected that the randomized Evaluation of Xience Prime versus Coronary Artery Bypass Surgery for Effectiveness of Left Main Revascularization (EXCEL) study will confirm the safety and efficacy of drug-eluting stents for unprotected LMCA stenosis compared with CABG.

Functional angioplasty

The new insight for FFR and intravascular ultrasound (IVUS) guided PCI was presented. In real-world practice, less than half of patients are noninvasively evaluated for myocardial ischemia prior to revascularization therapy. Thus, coronary angiograms are still frequently utilized as a cornerstone of decision making, despite the substantial discrepancy between the angiographic and functional severity of stenosis. Adjuvant technologies such as FFR and IVUS are therefore considered in daily practice to overcome the limitations of coronary angiography for diagnostic and interventional procedures. A recently published subanalysis of the Fractional Flow Reserve versus Angiography for Guiding PCI in Patients with Multivessel Coronary Artery Disease (FAME) study thoroughly evaluated the 'visual–functional mismatch' of coronary artery disease. Of the 1329 target lesions (>50% stenosis by visual estimation), only 816 (61%) had FFR of 0.80 or below. Furthermore, among lesions with stenosis of 50–70%, 71–90% and 91–99%, only 65, 20 and 4%, respectively, were found to have FFR more than 0.80 [2]. Therefore, lesions with intermediate angiographic stenosis should be evaluated by FFR during coronary angiography or PCI, particularly in the absence of a noninvasive functional test. It was emphasized that interventional cardiologists should overcome the personal visual bias that produces suboptimal outcomes. Recently, it was published that the IVUS minimal luminal area (MLA) criteria to predict FFR of no more than 0.80 was 2.4 mm^2. However, among 236 coronary lesions, 30% of analyzed lesions with an MLA of less than 2.4 mm^2 had FFR greater than 0.80 [3]. Therefore, the use of IVUS MLA criteria alone could not predict the result of FFR measurement and would still lead to the performance of unnecessary procedures in a considerable proportion of patients. FFR measurements, based

on the objective determination of ischemia, can assist individual interventional cardiologists in making decisions about revascularization, thereby helping to balance the risks and benefits of PCI in various clinical situations. Much clinical evidence indicates that use of this dedicated invasive functional method may help in selecting appropriate patients and lesions for treatment, avoiding unnecessary procedures, reducing medical costs and improving each patient's clinical outcome. In the meantime, IVUS can be used to secure the PCI procedure by preintervention lesion assessment and postintervention stent optimization.

Conclusion

The purpose of Angioplasty Summit TCTAP 2011 was to present the latest clinical trials and trends of the interventional techniques and medications in coronary, peripheral and carotid arteries and structural heart disease. The participants were given the opportunity to learn and compare different approaches for treating each case with world renowned experts in the field of interventional cardiology. The enthusiasm of TCTAP will contribute to sharing the most current knowledge and motivate the research drive of the interventional cardiologist in the Asia-Pacific region.

Financial & competing interests disclosure

The authors have no relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript. This includes employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties.

No writing assistance was utilized in the production of this manuscript.

References

1 Park SJ, Kim YH, Park DW *et al.* Randomized trial of stents versus bypass surgery for left main coronary artery disease. *N. Engl. J. Med.* 364, 1718–1727 (2011).

2 Tonino PA, Fearon WF, De Bruyne B *et al.* Angiographic versus functional severity of coronary artery stenoses in the fame study fractional flow reserve versus angiography in multivessel evaluation. *J. Am. Coll. Cardiol.* 55, 2816–2821 (2010).

3 Kang SJ, Lee JY, Ahn JM *et al.* Validation of intravascular ultrasound-derived parameters with fractional flow reserve for assessment of coronary stenosis severity. *Circ. Cardiovasc. Interv.* 4, 65–71 (2010).