23rd CARDIOVASCULAR SUMMIT
TCTAP2018

TCTAP DAILY NEWS

Inside this Issue

Spotlights of Major Clinical Studies with Expert Commentary

ABSORB III, IV, Updated Meta, and More - Expert Future Expectation on Bioabsorbable Scaffolds

Gregg W. Stone, MD
Columbia University Medical Center, USA

Contemporary metallic drug-eluting stents (DES) have markedly improved the 1-year rates of event-free survival after PCI compared with first-generation DES and earlier angioplasty devices. However, studies demonstrate that after the first year, all metallic stents are associated with 2% to 3% per year rates of very late target lesion–related events. To overcome these limitations, BRS have been developed that offer the mechanical support and drug delivery functions of metallic DES.

The ABSORB II, ABSORB Japan, ABSORB China, and ABSORB III were pooled for analysis. The 1-year relative rates of the patient-oriented composite endpoint of death, myocardial infarction (MI), or revascularization did not differ significantly between bioresorbable vascular scaffold (BVS) and CoCr-EES. The relative rates of cardiac, all-cause mortality, and all MI did not differ significantly between the two devices, although target vessel-related MI was greater with BVS than with CoCr-EES. The ABSORB IV trial includes 2,604 patients with stable ischemic heart disease or acute coronary syndromes (ACS), site investigators strictly adhered to the BVS-specific technique of aggressive predilatation, appropriate sizing of the vessel, and postdilatation. The 30-day target lesion failure (TLF) was 4.6% for BVS versus 3.7% for CoCr-EES. Patient-oriented major adverse cardiac events were 5.2% for BVS compared to 4.1% for CoCr-EES. However, the rate of 30-day ischemia-driven target vessel revascularization was 1.2% versus 0.2%, and the rate of device thrombosis was 0.6% in the BVS group and 0.2% in the CoCr-EES group.

The rates of non-peri-procedural MI and ischemia-driven target lesion revascularization at 30 days were greater with BVS than with CoCr-EES, and a trend toward greater stent thrombosis with BVS was present. Compared to the ABSORB III trial, reducing the number of very small vessels treated in the ABSORB IV trial substantially reduced the device thrombosis rate in both groups. The ABSORB IV trial showed BVS-optimized procedure and better technique contribute to better clinical outcomes. A new generation Absorb scaffold with thinner struts and optimized implantation technique are expected to offer promise of superior outcomes.

Why DAPT Trial Not Followed?: Moving Forward Less Duration with Smart DES, De-Escalating Strategy, and P2Y12 Inhibitor Monotherapy

Dominick J. Angiolillo, MD
University of Florida College of Medicine, USA

Dual antiplatelet therapy (DAPT) reduces stent thrombosis and ischemic events after percutaneous coronary intervention (PCI), but increases the risk of bleeding. Current guidelines recommend default DAPT durations of 6 months and 12 months for patients undergoing elective PCI and those presenting with acute coronary syndromes. Although practice guidelines advocate for prolonged use of DAPT after drug-eluting stent (DES) implantation, and thus, ideally postponing noncardiac surgery for 12 months, the optimal duration of DAPT remains unknown. As stents have improved, metal alloys, stent structures, and polymer carriers have been developed and clinical out-comes have also improved. Thus, the results of recent studies using second-generation DES show results supporting short-term DAPT treatment.

De-escalation is utilized as a strategy to reduce long-term bleeding events without a trade-off in ischemic protection. Several trials showed that a strategy of guided de-escalation of antiplatelet treatment was noninferior to standard treatment with prasugrel at 1 year in terms of net clinical benefit. The strategy did not show any increase in ischemic events, although there was a numeric but not statistically significant reduction in bleeding.

It is important to note that although switching from prasugrel or ticagrelor to clopidogrel is naturally associated with an increase in platelet reactivity, the different speed of offset of the drugs may have important therapeutic implications, particularly with regard to the timing of clopidogrel administration.

The WOEST study is an investigator-driven, open-label, multicenter trial done to assess the role of aspirin in patients who

Continued on page 4

Tuesday, May 1, 2018

Today's Highlights

Complex Intervention Sessions
8:30 AM - 12:30 PM
Room 104, Level 1

Coronary Symposium
8:30 AM - 12:30 PM
Coronary Theater, Level 1

Valve Symposium
8:30 AM - 12:30 PM
Valve Theater, Level 1

Moderated Abstract and Complex Case Competition
8:30 AM - 12:30 PM
Abstract & Case Zone, Level 1

Challenging Case Competition with Experts' Focus Review I, II
2:00 PM - 6:00 PM
Room 104, 105, Level 1

21st KCTA Symposium
1:00 PM - 3:55 PM
Coronary Theater, Level 1

CE Program for Radiotechnologists
4:00 PM - 6:00 PM
Coronary Theater, Level 1

Satellite Symposia: Morning Roundtable Forum
7:00 AM - 8:10 AM*

Lunchtime Activities
12:45 PM - 1:45 PM*

*For details on the locations, please check TCTAP 2018 App

General Information

Shuttle Bus

Free shuttle bus is provided between COEX and several venue hotels.
Visit the **CVRF booth** for more details.

Certificate of Attendance

Certificate of Attendance for TCTAP 2018 will be distributed along with the badge.

Cyber Station / Free Mobile Charging Station

- CVRF Booth, Grand Ballroom Lobby, Level 1
- Registration Lounge, Exhibition (B2) Hall Lobby, Level 1

Registration / Lost and Found / Coat Room

- Opening Hours: **6:00 AM ~ 6:10 PM**, Sunday, April 29 ~ Tuesday, May 1
- Registration Booth, Exhibition (B2) Hall Lobby, Level 1

Tour Information

Tour information will be provided by COSMO JIN Tour and Seoul Metropolitan Government.

- Information Booth, Grand Ballroom Lobby, Level 1
- Seoul Promotional Booth, Grand Ballroom Lobby, Level 1

Program at a Glance

	Coronary Theater *Level 1*	Valve Theater *Level 1*	Room 104 *Level 1*	Room 105 *Level 1*	Other Session Rooms	Abstract Zone I, II *Level 1*	Case Zone I, II, III *Level 1*
07:00	Satellite Symposia - Morning Roundtable Forum						
07:30							
08:00							
08:30	Coronary Symposium Live Cases & Lectures	Valve Symposium Live Cases & Lectures	Complex Intervention Sessions PCI, AV, MV&TV and HF			Moderated Abstract Competition	Moderated Complex Case Competition
09:00							
09:30							
10:00							
10:30							
11:00							
11:30							
12:00							
12:30							
13:00		Satellite Symposia - Lunchtime Activities					
13:30							
14:00	21st KCTA Symposium						
14:30							
15:00							
15:30			Challenging Case Competition with Expert's Review I	Challenging Case Competition with Expert's Review II			
16:00	CE Program for Radiotechnologists *Korean Session						
16:30							
17:00							
17:30							
18:00							

Be the part of TCTAP History

Take a picture and be recorded in TCTAP's History
Have Special Moment with us

Don't Miss it!
You can get a latest information and special gift!

**CVRF Booth,
Grand BallRoom Lobby, Level 1**

Opening Hours

Saturday, April 28 → 10:00 AM ~ 5:20 PM
Sunday, April 29 ~ Tuesday, May 1 → 6:00 AM ~ 6:10 PM

Live Case Transmission from World-Renowned Medical Centers

St. Paul Hospital, Vancouver, Canada
- 8:30 AM ~ 10:30 AM @ Valve Theater, Level 1
- Operator(s): Anson Cheung, David Wood, Robert Boone

Columbia University Medical Center, USA
- 8:30 AM ~ 9:30 AM @ Coronary Theater, Level 1
- Operator(s): Dimitrios Karmpaliotis, Ajay J. Kirtane, Jeffrey W. Moses, Manish Parikh

Severance Hospital, Seoul, Korea
- 10:00 AM ~ 10:45 AM @ Coronary Theater, Level 1
- Operator(s): Myeong-Ki Hong, Byeong-Keuk Kim
- Imaging Interpreter: Jung-Sun Kim
- 11:00 AM ~ 11:40 AM @ Valve Theater, Level 1
- Operator(s): Myeong-Ki Hong, Young-Guk Ko
- Echo Interpreter: Chi Young Shim

Asan Medical Center, Seoul, Korea
- 11:15 AM ~ 12:30 PM @ Coronary Theater, Level 1
- Operator(s): (Case #3) Seung-Jung Park, Jung-Min Ahn (Case #4) Alan C. Yeung, Seung-Whan Lee
- 11:40 AM ~ 12:30 PM @ Valve Theater, Level 1
- Operator(s): (Case #5) Duk-Woo Park, David J. Cohen (Case #6) Seung-Jung Park, Jung-Min Ahn
- Echo Interpreter: Dae-Hee Kim

Spotlights of Major Clinical Studies with Expert Commentary

Continued from page 1

require anticoagulation and antiplatelet therapy after stent implantation by PCI. The study showed fewer bleeding episodes were seen with clopidogrel alone than with clopidogrel plus aspirin. Additionally, mortality at 1 year, a secondary endpoint, was significantly lower with double therapy than with triple therapy.

In patients undergoing PCI, proper DAPT therapy is an important treatment to balance bleeding and thrombosis. Future researches are expected to help in more appropriate treatment.

Multivessel PCI in AMI and Cardiogenic Shock: SHOCK Trial Series Review and Real-World Application

Approximately 5 to 10% of cases of acute myocardial infarction (AMI) are complicated by cardiogenic shock, which is associated with early mortality of 40 to 50%. The rapid reperfusion of myocardium that is in process of becoming infarcted

Davide Capadanno, MD

Ferrarotto Hospital, Italy

is the main goal in treatment of AMI, with or without cardiogenic shock. However, multivessel PCI may also lead to harm due to increased procedural time, more contrast use, increased thrombogenicity, and less effective enteric absorption of antiplatelet agents, which in turn may lead to higher rates of stent thrombosis.

The CULPRIT-SHOCK trial, which was a randomized trial that compared culprit-lesion-only PCI with immediate PCI of all obstructive lesions in patients who had STEMI or NSTEMI with cardiogenic shock. The major finding was that the risk of the primary endpoint of death or severe renal failure leading to renal-replacement therapy was higher with immediate multivessel PCI than with culprit lesion-only PCI.

In contrast, a "real-world" series of cardiogenic shock was reported the outcomes after multivessel versus culprit-only PCI in 659 patients with AMI and multivessel disease complicated by cardiogenic shock from the KAMIR-NIH registry. Despite the higher prevalence of this prognostically unfavorable angiographic finding, 1-year clinical outcomes were significantly better in the multivessel PCI group, with reductions in all-cause, and noninfarct artery–related repeat revascularization.

The discrepancy can be explained by differences in timing of revascularization; CULPRIT-SHOCK only investigated immediate multivessel PCI, whereas the KAMIR-NIH registry included 60.4% immediate multivessel PCI with the remainder undergoing staged PCI before discharge. Moreover, CULPRIT-SHOCK mandated an attempt to revascularize chronic total occlusions during the index procedure.

Culprit-lesion-only PCI with possible staged revascularization should be the preferred revascularization strategy, which can also be translated as "keep the revascularization strategy simple." Immediate routine multivessel PCI should be avoided in patients with multivessel coronary artery disease and cardiogenic shock complicating acute myocardial infarction.

Spotlights of Major Clinical Studies with Expert Commentary

›› Monday, April 30, 2:00 PM - 3:06 PM
›› Room 104, Level 1

TCTAP 2018 - Featured Clinical Research from Abstracts

The CardioVascular Research Foundation (CVRF) announced the 5 featured clinical research from abstracts that were presented at the Transcatheter Cardiovascular Therapeutics Asia Pacific (TCTAP) 2018 scientific symposium yesterday.

Left Main Bifurcation: Lesion Failure after 2nd DES

Tae-Min Rhee

Seoul National University Hospital, Korea

Distal left main (LM) bifurcation is still a major challenge in percutaneous coronary intervention (PCI). Over 80% of LM lesions involves distal LM bifurcation and is related with poor prognosis compared to ostial and shaft lesion. Recently, guidelines recommended provisional one-stent strategy in most distal LM bifurcation except long lesion of left circumflex coronary artery (LCX) and high risk of LCX compromise. However, this consensus is mainly based on reports of old generation drug-eluting stents (DES). The study for optimal PCI strategy for LM bifurcation and prognostic predictors in 2nd generation DES era from pooled analyses of Korean multicenter DES cohort was announced by Tae-Min Rhee, MD, Seoul National University Hospital in Korea.

Patient-level pooled analyses of five nationwide DES registries were performed in patients treated with biodegradable polymer-coated biolimus-eluting stent, biodurable polymer-coated everolimus-eluting stent, or biodurable polymer-coated zotarolimus-eluting stent. Clinical outcomes at 3-year were compared according to the PCI strategy (one- or two-stenting). Independent predictors of target lesion failure (TLF, a composite of cardiac death, target-vessel myocardial infarction, and clinically-driven target lesion revascularization [CD-TLR]) were evaluated.

Among a total of 722 patients with LM bifurcation lesion, two-stenting was performed in 134 (18.6%) patients. Two-stenting group did not show significantly higher TLF rate than one-stenting group after multivariable adjustment (20.1% vs. 11.3%, adjusted hazard ratio [HR] 1.66, 95% CI 0.99-2.80, p=0.056). Significantly higher risk of TLF in two-stenting than one-stenting group was mainly driven by CD-TLR, which was attenuated after multivariable adjustment (CD-TLR: 13.7% vs. 6.0%, unadjusted HR 2.48, 95% CI 1.40-4.38, p=0.002). Independent predictors of TLF included premature single antiplatelet therapy (SAPT) in two-stent group **(Figure 1)**.

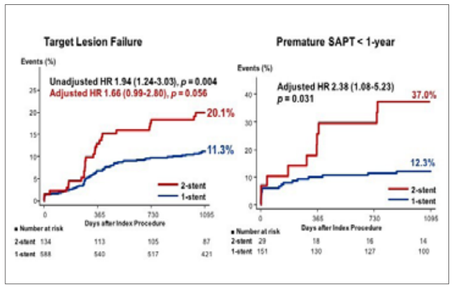


Figure 1. Target lesion failure and premature SAPT outcomes

"This results suggest that two-stent strategy for LM bifurcation is as safe as one-stent strategy with the use of new-generation DES," said Dr. Rhee. "And premature discontinuation of dual antiplatelet therapy (DAPT) less than one year was the only modifiable independent predictor for TLF especially for two-stent group." Therefore, he suggested that DAPT without discontinuation for at least one year might reduce lesion failure and thrombotic events in two-stent strategy.

Sirolimus Coated Balloon for DES Restenosis

Rosli Mohd Ali, MD

Cardiac Vascular Sentral Kuala Lumpur, Malaysia

Results from the prospective, multi-center, randomized trial to compare a sirolimus with paclitaxel-coated balloon in coronary in-stent restenosis (ISR) were reported yesterday at the 23rd annual TCTAP scientific symposium.

The optimal treatment of coronary ISR is still under debate. Paclitaxel-coated balloons (PCB) are an established treatment option with a class I level A recommendation in the European guidelines. It is reported that the efficacy of PCB is better for bare-metal stent (BMS) ISR than drug-eluting stent (DES) ISR. Researchers hypothesized that Sirolimus-coated balloons (SCB) also could be an effective device for inhibition neo-intimal proliferation in humans.

In this study, 50 stable or unstable patients with DES-ISR lesions (>70% diameter stenosis or >50% and positive functional study) including margin stenosis with maximal 5 mm distance to the stent in native coronary arteries were randomly assigned to either SCB (N=25) or PCB (N=25) group. The primary endpoint was late lumen loss (LLL) at 6 months **(Figure 2)**.

The trial found no difference in the primary endpoint between SCB and PCB (in-lesion LLL 0.27 vs. 0.28 mm, p=0.96 and in-segment LLL 0.19 vs. 0.21 mm, p=0.89). For secondary endpoints, rates of major adverse cardiac events (MACE) (12% vs. 16%, p=0.99), target lesion revascularization (TLR) (12% vs. 16%, p=0.99), and stent thrombosis (0% vs. 4%, p=NA) were similar among the treatment arms.

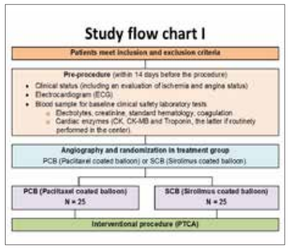


Figure 2. Study design

"This trial shows that among DES-ISR patients treated with a drug-coated balloon, SCB has similar angiographic outcomes to PCB," said Rosli Mohd Ali, MD, PhD, of Cardiac Vascular Sentral Kuala Lumpur in Malaysia. "Therefore, this first-in-man trial of a novel SCB with a crystalline coating suggested another treatment option for DES-ISR patients. Future larger trials are needed to further investigate and confirm the safety and efficacy of SCB in DES-ISR and de-novo lesions."

Prosthesis-related Clinical Events and Performance after TAVI

Luca Testa, MD

IRCCS Policlinico San Donato, Italy

Transcatheter aortic valve implantation (TAVI) caused a paradigm shift the treatment of patients with severe symptomatic aortic stenosis (AS) in the last decade. However, as a consequence of the elderly population treated, the data of prosthesis-related clinical events and long term performance after TAVI remains not well known. This observational research to investigate treatment of TAVI in severe AS patients according to echocardiographic data and the rate of prosthesis-related clinical events at long-term follow-up was announced at the 23rd annual TCTAP 2018 - Featured Clinical Research from Abstracts on Monday, April 30th.

Researchers enrolled all consecutive patients (N=2343) with severe AS with CoreVale and EvolutR (Medtronic Inc., Minneapolis, Minesota) undergoing TAVI in 13 Italian centers from June 2007 to December 2016. Transthoracic echocardiography was performed before TAVI within 3 days after TAVI. All the cardiac deaths and the hospitalizations possibly related to the prosthesis were reviewed to assess the presence of endocarditis, thrombosis and or worsening valve parameters (stenosis/regurgitation). These events were defined as prosthesis-related clinical events.

At 7 year follow-up, overall mortality was 68.1% (62.9-73.2%) and 20 prosthesis-related clinical events occurred with an annual rate ranging from 0.2% to 1.5%; the 7 years incidence of events was 3.2% (1.51-6.71%). The fatal prosthesis-related clinical events occurred among 6 patients (3 patients with endocarditis and 3 patients with severe degenerative bioprosthesis). Another 14 prosthesis-related events led to a new hospitalization for heart failure (2 patients with medical treatment, 3 patients with surgical valve replacement and 8 patients with valve in valve procedure). The rates of mild and moderate paravalvular leakage did not change from discharge (53.8% and 14.1%) to last available follow up (51% and 16%), p=0.65 **(Figure 3)**.

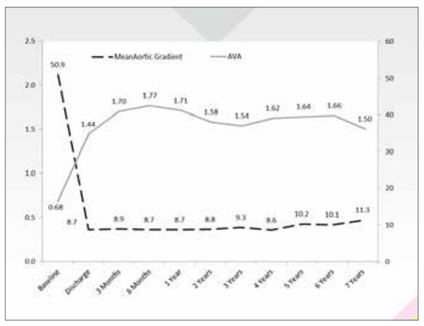


Figure 3. Modifications over time of echocardiographic parameters

Acute Type B Aortic Dissection: Population-based Cohort Study

I-Ming Chen, MD

Taipei Veterans General Hospital, Taiwan

According to guidelines, uncomplicated type B aortic dissection (TBAD) patients should receive optimal medical treatment. However, uncomplicated TBAD represent a middle ground, which there is little consensus. Some studies have suggested that intervention with thoracic endovascular aortic repair (TEVAR) confers better outcomes than medical management alone in these patients, but other studies are less conclusive, and most studies have been small.

The results of large population-based cohort study for evaluating the long-term survival of and adverse events in TBAD patients who received TEVAR or medical management alone (MMA) were presented yesterday.

Researchers identified 6,295 patients with newly diagnosed acute TBAD who received either TEVAR (N=691) or MMA (N=5604) between 2006 and 2014 from the National Health Insurance Research Database in Taiwan. Results showed that the 5-year survival rate did not differ between the two groups after propensity score matching analysis **(Figure 4)**.

TEVAR was associated with a higher risk of death in the patients who were female, young, or had a history of cerebrovascular disease or hypertension than MMA in subgroup analysis. Although TEVAR was associated with higher risk of paraplegia and acute renal failure than MMA at 1-year follow-up, no difference was observed in intestinal necrosis, acute myocardial infarction, and chronic renal failure. The incidence of re-intervention was 3.68 per 100 person-year (95% CI: 2.92-4.65) in TEVAR group and the incidence of late-intervention was 3.67 per 100 person-year (95% CI: 3.41-3.95) in MMA.

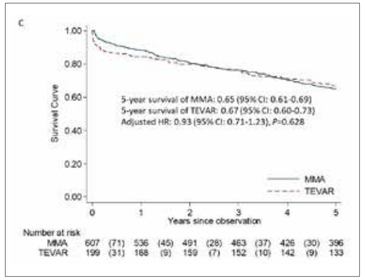


Figure 4. 5-year survival rate after propensity score matching analysis

I-Ming Chen, MD, of Taipei Veterans General Hospital in Taiwan, said that TBAD patients had a chance of intervention of TEVAR during the first 5 years, and early TEVAR did not increase intestinal serious adverse event except paraplegia and acute renal failure. Given the predictable course of disease evolution despite optimal medical therapy, physicians should consider TEVAR initially in TBAD diagnosed patients except for those with certain underlying conditions or anatomic features that make TEVAR placement unsuitable or risky. Consequently, there is a current trend toward lowering the threshold for early TEVAR of patients with uncomplicated TBAD.

Abluminus Sirolimus-eluting Stent: The en-ABL e-registry

Sameer Dani, MD

Life Care Institute of Medical Sciences & Research & Apollo Hospitals, India

The en-ABL e-registry data from the prospective, multi-center, real world, all-comer study to evaluate the safety and effectiveness of the sirolimus-eluting stent with unique fusion coating (coated on stent and exposed part of balloon), Abluminus® DES+ (Envision Scientific) **(Figure 5)** was presented at the 23rd annual TCTAP scientific symposium.

Abluminus® is targeted at treating diabetic patients. Many physicians agree that treating diabetic patients is a challenge, with more aggressive lesions and an increased likelihood of restenosis. New and effective devices are needed, and Sameer Dani, MD, of Life Care Institute of Medical Sciences & Research & Apollo Hospitals, Ahmedabad in India, introduced a novel sirolimus-eluting stent with a unique design combining the advantages of a drug-eluting balloon and stent and where the drug is positioned abluminally towards the wall and not the lumen. This design could help to deliver the drug in a more homogeneous fashion and be useful for diabetic patients who have higher late loss after stent placement and more intimal hyperplasia.

The primary endpoint occurred in 2.62% at one year, which was defined as cardiac death (0.66%), target vessel myocardial infarction (TV-MI) (0.40%), and target lesion revascularization (TLR) (1.56%). Diabetic patients had no significant difference in major adverse cardiac event (MACE) rates compared to non-diabetic patients **(Figure 6)**.

The definite/probable stent thrombosis rate was low (0.66%). Patients were treated according to standard interventional techniques with 100% procedure success rate and with no device malfunction.

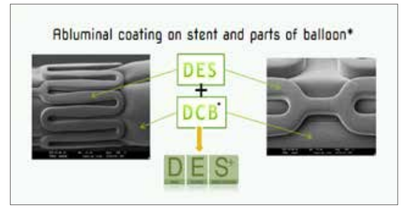


Figure 5. Sirolimus-eluting stent with unique fusion coating

In conclusion, the en-ABL e-registry data showed long-term safety and efficacy in overall real-world patients treated with Abluminus® stent. In addition, the low MACE rate, particularly in high risk subgroup of diabetic patients, is a proof of concept for the technology behind Abluminus® stent. "We have two ongoing studies, ABILITY RCT and DEDICATE clinical registry, and these studies could clearly show us the safety and efficacy of Abluminus® stent in real-world population," Dr. Dani said.

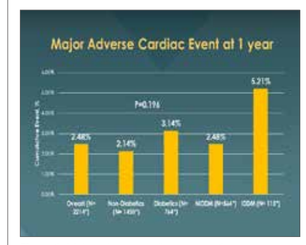


Figure 6. Major adverse cardiac event at 1 year

TCTAP 2018 - Featured Clinical Research from Abstracts

›› Monday, April 30, 4:56 PM - 5:51 PM
›› Room 104, Level 1

Coronary Symposium

Future Perspectives of BRS: Will It Go Forward or Not?

Gregg W. Stone, MD

Columbia University Medical Center, USA

Drug-eluting stent (DES) has become the treatment of choice for interventional revascularization of coronary artery stenosis supported by an abundant source of data. Despite such success and significant improvement over the years, traditional metallic stents have been identified with intrinsic limitations. In fact, their permanent structure hinders surgical myocardial revascularization, physiological vessel remodeling and exposes patients to the risk of stent thrombosis for indefinite time.

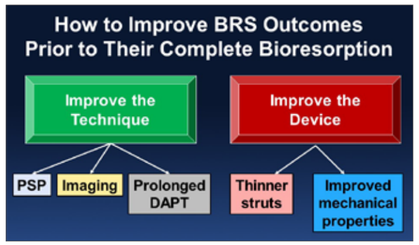


Figure 1. Factors to consider for improving BRS outcomes

Coronary bioresorbable scaffolds (BRS) were developed to overcome some of these limitations of standard metallic stents. BRS have been introduced in the recent years as a novel, promising approach to treat coronary stenosis. BRS have several putative advantages, including early restoration of physiological processes, superior conformability, beneficial edge-vascular response and suppression of late-stent malapposition. However, recently published randomized trials and registry studies raised clinical concerns about the safety and efficacy of the first generation BRS. They showed higher rate of procedural related myocardial infarction and scaffold thrombosis compared with metallic DES. Thus, in March 2017, the US Food and Drug Administration (FDA) warned physicians on treating patients with first generation BRS.

The unsuccessful results of first gene-ration BRS provide further insights on improving BRS outcomes. Above all, recent data emphasize the importance of appropriate lesion selection and accurate application of proper implantation technique (PSP; prescribing long inflation times and systematic high-pressure post-dilation with a non-compliant balloon) **(Figure 1)**. In addition, intravascular imaging-guiding during BRS implantation has been reported to have a major positive impact on the patient outcome. Prolonged dual antiplatelet therapy could also be an option following BRS implantation. Furthermore, a new generation of BRS should warrant a better radial strength, a sleeker endoluminal profile, a smaller footprint, and resorption processes that do not interact with the vessel wall **(Figure 2)**.

Figure 2. New generation of BRS

Several BRS with advanced and unique features are under investigation. For example, FANTOM (Reva Medical) is a sirolimus-eluting BRS made of tyrosine polycarbonate and is designed to degrade within 1 year. Key differentiating features of FANTOM compared with other BRS technologies include its 125 µm thickness, DES-like radiographic visibility, single-step inflation, good expansion range, and no special storage or handling requirements.

In conclusion, improved BRS have been developing that promise to overcome many of the current limitations. Despite the setbacks to date, improved BRS devices implanted with optimized technique are likely to improve lifelong outcomes for patients with coronary artery disease.

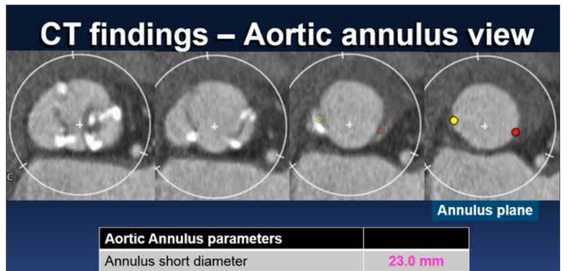
Coronary Symposium
Live Case & Lecture Session IV.

›› Tuesday, May 01, 8:30 AM - 10:00 AM
›› Coronary Theater, Level 1

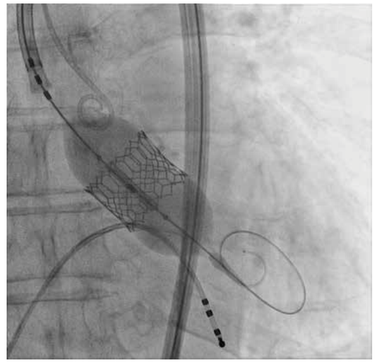
Live Cases

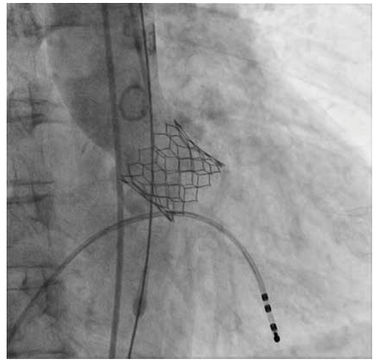
Yesterday's Hot Lives

An 86 year-old male was admitted for dyspnea on exertion (NYHA Class III). The electrocardiography showed normal sinus rhythm with left ventricular (LV) hypertrophy. He had a history of asthma under control but without hypertension or diabetes. The transthoracic echocardiography showed bicuspid aortic valve and severe aortic stenosis with normal LV systolic function (EF=65%). The aortic valve area by continuity equation was 0.46 cm^2, maximal transaortic flow velocity was 4.7 m/s, and mean and peak pressure gradient were 88/56 mmHg, respectively. The computed tomography (CT) scan showed mean annulus diameter of 23.8 mm, area of 448 mm^2 and perimeter of 75.1 mm. The distance from annulus to LM and RCA ostium were 13.9 and 20.2 mm, respectively. There was no evidence of significant coronary artery stenosis on the CT. His STS score was 3.8% and EuroScore was 8.1%. The right femoral artery was very tortuous, and thus, we decided to approach via the left femoral artery with the minimal diameter of 8.7 mm. After discussion, we planned to implant the 26 mm Sapien 3 valve.



Under conscious sedation, 6F sheath and temporary pacemaker were inserted through the right femoral vein, and 7F sheath and 6F pig-tail catheter were inserted through the right femoral artery. 8F sheath was inserted through the left femoral artery, and the right femoral artery was dilated with 14F Ultimum sheath. An Amplatz Left (AL) 1 diagnostic catheter with a 0.035 inch Amplatz Stiff Wire was used to cross the aortic valve, and pre-ballooning was performed with an 18 mm-sized balloon. Then, Sapien 3 valve was introduced, and under fluoroscopy control, a 26-mm Sapien 3 prosthesis with 2 cc underfill was placed and successfully deployed at the best position of the aortic annulus. After the valve implantation, fluoroscopy and transthoracic echocardiography showed more than mild aortic regurgitation. Hence, nominal ballooning was applied again. Final fluoroscopy demonstrated minimal aortic regurgitation without any acute complications. After the intervention, the puncture site was closed with a Proglide.

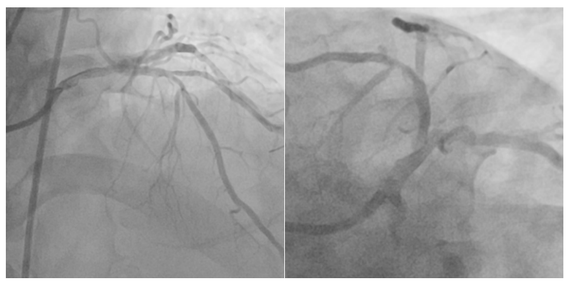




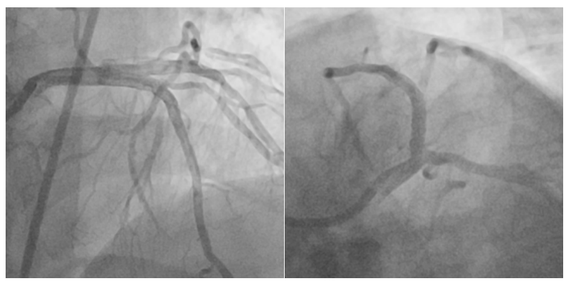
A 73 year-old male was admitted for silent ischemia. His coronary computed tomography (CT) showed moderate stenosis at mid left anterior descending (LAD) artery and proximal right coronary artery (RCA) with a moderate calcium score. Coronary angiography showed left main disease with significant stenosis at proximal to mid LAD. The fractional flow reserve (FFR) value of LAD was 0.61. Left coronary artery was engaged with 7F JL 4.0 guiding catheter. Using the Runthrough guidewire, we passed to LAD and diagonal branch. He used an Emerge NC balloon 2.75 x 20 and Resolute Onyx stent 3.0 x 18 at mid LAD. The kissing balloon technique was used for LAD and diagonal branch bifurcation with SAPPHIRE NC balloon 3.25 x 15 and Raiden 3 balloon 2.0 x 15.

We came to treat the LM bifurcation with Powered Lacrosse balloon 3.0 x 15. Resolute Onyx stent 3.5 x 30 was implanted at left main to proximal LAD. Kissing balloon was applied at proximal LAD with NC TREK 3.5 x 15 and proximal left circumflex coronary artery (LCX) with Nimbus Salvo 3.5 x 13. And then, high-pressure balloon was used at the in-stent lesion with SAPPHIRE NC balloon 3.25 x 15 and another stent (Resolute Onyx stent 2.75 x 12) was implanted at the mid LAD. Finally, Raiden 3 balloon 4.5 x 10 was used as a post-balloon from left main to proximal LAD. The final angiography showed well-positioned and expanded stent with TIMI 3 flow.

<Pre>



<POST>



Yesterday's Highlights

TCTAP 2018 Wrap-up Interview

CTO: To Open or Not to Open

Moderator: Gerald Werner
Interviewees: Paul Hsien-Li Kao, Seung-Whan Lee, Kambis Mashayekhi

CTO-PCI should be performed when the anticipated benefits (which depend on the patient's baseline clinical condition and the likelihood of success) exceed the potential short- and long-term risks. Currently, symptom improvement is considered the main benefit of CTO-PCI, despite criticisms that there is limited supportive prospective randomized controlled clinical trial data: indeed, only 3 randomized-controlled trials have been reported to date, only 1 of which has been published.

Figure 1. Ongoing trials for low-risk patients

The EXPLORE (Evaluating Xience and Left Ventricular Function in Percutaneous Coronary Intervention on Occlusions After ST-Elevation Myocardial Infarction) trial enrolled 304 patients who underwent primary PCI for acute ST-segment elevation acute myocardial infarction and had a coexisting non–infarct-related artery CTO. Patients were randomized to CTO-PCI versus medical therapy alone. CTO-PCI success was 73%. Cardiac magnetic resonance imaging performed after 4 months showed similar left ventricular ejection fraction and left ventricular end-diastolic volume in the 2 study groups. The DECISION-CTO (Drug-Eluting stent Implantation versus optimal Medical Treatment in patients with Chronlc Total OccluSION) trial was presented at the 2017 American College of Cardiology meeting **(Figure 1)**.

The DECISION-CTO trial randomized 834 patients with coronary CTOs (many of whom also had multivessel disease) to medical therapy (MT) alone versus MT+CTO-PCI. Patients in the MT and the MT+CTO-PCI group had similar clinical outcomes during a median follow-up of 3.1 years. The study has several limitations, such as suboptimal primary endpoint selection, high rate of non–CTO PCI (73% of the study patients had multivessel disease in both groups), early termination before achievement of target enrollment, high crossover rates (18% in the MT alone group underwent CTO-PCI), and mild baseline symptoms in both study groups. The EuroCTO (A Randomized Multicentre Trial to Evaluate the Utilization of Revascularization or Optimal Medical Therapy for the Treatment of Chronic Total Coronary Occlusions) trial was presented at the 2017 EuroPCR meeting. Due to slow enrollment, the study ended prematurely after randomizing 407 patients instead of the planned 1,200. In contrast to DECISION-CTO trial, non-CTO lesions were treated before enrollment in the study. Compared with patients randomized to medical therapy only, patients randomized to CTO-PCI had more improvement in angina frequency at 12 months (p=0.009) as assessed by the Seattle Angina Questionnaire **(Figure 2)**.

So far, the decision about whether to perform CTO-PCI should be individualized, starting with a thorough clinical and angiographic assessment to determine the potential clinical benefit (symptom improvement in most cases), likelihood of success, and risk for complications. CTO-PCI should be offered to patients who have more to gain than to lose.

Figure 2. Ongoing trials on antithrombotic treatment for TAVR

TCTAP 2018 Wrap-up Interview
CTO: To Open or Not to Open
›› Monday, April 30, 8:40 AM – 9:10 AM

TAVR: Current Status and Future Perspectives

Moderator: Eberhard Grube
Interviewees: John Graydon Webb, Owen Christopher Raffel, Vinayak Bapat

Aortic valve stenosis is the most prevalent heart valve disease in the Western world, and it has a poor prognosis after symptom onset. Previously, surgical aortic valve replacement (SAVR) was the only effective treatment, but after being introduced in 2002, transcatheter aortic valve replacement (TAVR) became an option for certain patients with severe symptomatic aortic valve stenosis that was considered inoperable or in patients at high risk for surgical complications. TAVR has been associated with lower all-cause mortality than best medical therapy in patients who were ineligible for SAVR. In patients at intermediate risk, TAVR has been reported non-inferior to SAVR regarding death from any cause or disabling stroke.

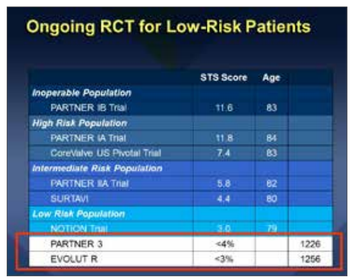


Figure 1. Ongoing trials for low-risk patients

The PARTNER 2A (Placement of Aortic Transcatheter Valves) and SURTAVI (Surgical Replacement and Transcatheter Aortic Valve Implantation) trials showed that TAVR is noninferior to SAVR for the composite endpoint of all-cause mortality or disabling stroke at 2 years for the treatment of severe aortic stenosis in intermediate-risk patients. These are landmark trials in this field and resulted in approval of TAVR for intermediate-risk patients **(Figure 1)**. While these studies further support the safety and efficacy of TAVR in intermediate risk patients, demonstration of comparable long-term durability of TAVR compared to SAVR out to 10 years and beyond is critical to decision-making in younger individuals.

Some RCTs of TAVR for low risk patient were introduced, such as PARTNER 3 and EVOLUT R. EARLY TAVR Trial are ongoing trials which are designed to evaluate the clinical outcome of TAVR for asymptomatic severe aortic stenosis (AS). The TAVR UNLOAD trial for heart failure patients is also ongoing. Panelists discussed about many kinds of debates on these issues, such as the timing of intervening in asymptomatic patients, paravalvular leakage or longevity of prosthetic valves, risk-benefit compare with SAVR, and a lot of new generation of TAVR valves, and so on.

Although there have been many advances in TAVR, stroke is still an important complication of TAVR. The risk of cerebrovascular accident (CVA) is inherently related to both patient-based and procedure-related risks. Previous studies showed comparable risk of stroke between SAVR and TAVR. Multiple studies have shown that CVA incidence after TAVR peaks in the immediate postoperative period, with a steady decline over the following months. Strokes occurring in the acute (<24 hours) and subacute early (<30 days) post-TAVR period are strongly related to procedural factors, whereas late events (1 to 12 months) are mostly connected to patient and disease factors. History of stroke, atrial fibrillation, and balloon dilatation have been identified as important predictors for stroke. Stroke has been consistently associated with increased mortality in patients undergoing TAVR. The utility of a cerebral embolic protection device (CEPD) in patients undergoing TAVR showed significant reduction of CVA when compared with routine management using no filter in patients undergoing TAVR. As more than 50% of post-procedural strokes are of a likely thromboembolic nature, antithrombotic treatment is believed to be a cornerstone for the prevention of ischemic CVA during and after TAVR **(Figure 2)**. In addition, antithrombotic treatment has been associated with a lower rate of structural valve deterioration after TAVR and with better outcomes after surgical aortic valve replacement. With the recent reports and concerns regarding subclinical leaflet thrombosis in bioprosthetic aortic valves, the value of antithrombotic treatment has been reemphasized. Although it has been speculated that leaflet thrombosis and reduced motion may be related to thromboembolic events and reduced leaflet durability, the clinical impact of these abnormalities is still unclear. However, it seems that antithrombotic treatment protects against leaflet thrombosis and may also resolve it.

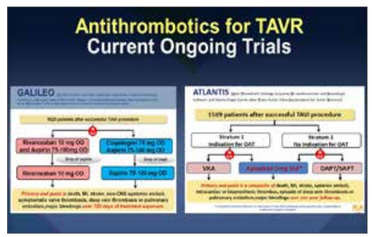
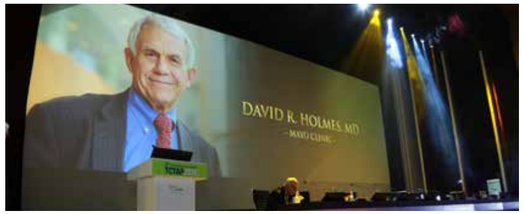


Figure 2. Ongoing trials on antithrombotic treatment for TAVR

TCTAP 2018 Wrap-up Interview
TAVR: Current Status and Future Perspectives
›› Monday, April 30, 9:30 AM – 10:00 AM

TCTAP Award

Dr. David R. Holmes Is Presented the 8th TCTAP Award "Master of the Masters"



Dr. David R. Holmes, a Professor of Medicine at Mayo Clinic College of Medicine and a Consultant of the Division of Cardiovascular Diseases & Internal Medicine at Department of Internal Medicine Mayo Clinic, USA has been selected as the recipient of the 8th TCTAP Award "Master of the Masters" for his achievements in the field of interventional cardiology and contribution to the growth of CardioVascular Summit-TCTAP. The award ceremony was held on Monday, April 30 at the Main Arena.

TCTAP Award "Master of the Masters" has been bestowed annually upon the most distinguished cardiologist who has made meritorious contributions and has been playing a significant leading role in the field of interventional cardiology, as well as in TCTAP over the years.

Dr. David R. Holmes was born in Oak Park, IL, USA in 1945. After graduating from the Medical College of Wisconsin, he commenced his career at Mayo Clinic from 1972 up until today. His specialized areas of interest include acute coronary syndromes, interventional cardiology, restenosis, vascular biology, risk outcomes analysis, and telemedicine. He has been involved almost every aspect of the development of percutaneous coronary intervention (PCI) from the beginning. With Dr. Holmes' enthusiasm for research, he has served as a principal or co-investigator in more than 70 National Institutes of Health (NIH) and industry-sponsored studies and has actively participated in many leading cardiovascular journals, such as JACC.

Dr. Holmes is a fellow of American Heart Association (AHA), and a fellow and past president of the Society for Cardiac Angiography and Interventions (SCAI) and American College of Cardiology (ACC). Particularly, his commitment to the ACC has spanned about 40 years. He has served on its Board of Trustees and led numerous committees.

Dr. Gurpreet S. Sandhu, Chair of the division of Interventional Cardiology at Mayo Clinic said, "Professor Holmes is truly very passionate about educating cardiologists worldwide and has taught and proctored extensively in many countries. We are truly blessed to have an individual with his knowledge, passion, and wisdom amongst us as a colleague and mentor."

His life story has been both purposeful and a delightful pleasure, and his career path from the Medical College of Wisconsin to Mayo Clinic is one step ahead which he can reflect in content. As a remarkable leader in this field, Dr. David R. Holmes will continue imparting his expertise by mentoring a generation of cardiologists.

TCTAP Award "Master of the Masters"

›› Monday, April 30, 10:00 AM – 10:17 AM
›› Main Arena, Level 3

Hot Topics

Complex Intervention

Toolbox for Severe Coronary Calcification: Device, Indication, and Tips

Imad Sheiban, MD
Pederzoli Hospital, Italy

Calcified coronary lesions represent unique challenges for percutaneous coronary intervention (PCI) with a smaller final lumen diameter and less acute lumen gain with stenting when compared to non-calcified lesions. Furthermore, there is a risk for stent under expansion, a lower procedural success rate and a more frequent rate of acute complications, such as acute dissection as well as a greater propensity for restenosis. Improvements in operator experience in conjunction with advances in device technology have allowed percutaneous treatment of increasingly complex lesions over the years. Fibrocalcified lesions (which are present in 17-35% of patients undergoing PCI) are still considered a challenge in heavily calcified lesions, and poor lesion preparation often leads to stent underexpansion and malapposition, which increases the risk of stent thrombosis and in-stent restenosis. A number of devices, ranging from specialized balloons to the more complex atherectomy devices, have therefore been designed to tackle such lesions prior to stent implantation.

Dedicated Balloons: Mechanisms of conventional balloon angioplasty include compression, disruption and dissection of the underlying plaque, as well as longitudinal extension of the coronary artery. Conventional balloon angioplasty may be effective, but it can also lead to major dissection or even coronary rupture when used in calcified plaques due to eccentric balloon dilatation. This is especially the case with the more trackable semi-compliant balloons commonly used as predilatation tools. Dedicated balloons currently available address some of these issues by special designs and mechanism of action, from which they produce a controlled and limited dissection and changing plaque compliance for an optimal stent expansion and apposition. The most commonly used balloons for the fibrocalcified lesion preparation are AngioSculpt (AngioScore Inc., Fremont, CA, USA), Flextome Cutting Balloon (Boston Scientific, Natick, MA, USA), Scoreflex balloon (OrbusNeich, Hong Kong, China), and Lacrosse NSE (Goodman Co. Ltd., New Zealand).

Atherectomy Devices: Atherectomy has taken several different forms, including directional atherectomy or plaque excision (SilverHawk, ev3, Inc., Plymouth, Minnesota), laser atherectomy, rotational atherectomy and more recently, orbital atherectomy. Currently, directional atherectomy is used in the peripheral vascular interventions and not in coronary arteries.

Laser Atherectomy: Excimer laser coronary atherectomy (ELCA) makes use of high-power ultraviolet pulses (wavelength 308 nm) generated through a fiberoptic catheter to vaporize thin sections of tissue without causing significant damage to the surrounding tissues. The Spectranetics CVX- 300 (Spectranetics, Colorado Springs, CO, USA) ELCA system is composed of the excimer laser generator (CVX 300) and the pulsed xenon-chloride catheters available in 0.9, 1.4, 1.7 and 2 mm diameter. Rotational atherectomy (RA) introduced in 1990 is shown to be safe and effective in the treatment of calcified coronary lesion subsets. Its main mechanism of action entails high-speed rotational plaque ablation and pulverization by the abrasive diamond coated burr. The burrs come in 8 sizes ranging from 1.25 to 2.5 mm. At the present time, the main objective of its usage is to both modify the plaque and debulk the lesion prior to stent implantation. Utilizing the principle of differential cutting, the "Rotablator" (Boston Scientific, Natick, MA, USA) ablates the inelastic tissue, such as fibrocalcific atheroma selectively. However, its usage has been varied and in fact, it is used in 3 to 11 % of lesions with moderate to severe calcifications prior to deployment of a coronary stent. The reasons for underutilization of RA may be multi-factorial, such as lack of adequate exposure and training, and fear of misconceptions that it is associated with a very high rate of serious complications.

Orbital Atherectomy (OA): Orbital atherectomy (Diamondback 360° Orbital Atherectomy System, Cardiovascular Systems, Inc., St. Paul, Minnesota) was introduced in 2007. This device provides an additional safe and effective tool for the treatment of patients with severely calcified coronary lesions. It works by utilizing an orbiting eccentric diamond-coated crown on the end of a drive shaft powered by a pneumatic drive console and rotates at a speed varying from 60,000 to 200,000 rpm in a similar fashion to rotational atherectomy. Feasibility, safety and benefit of this relatively novel device have been reported in the ORBIT I and II trials for the treatment de novo calcification. However, despite the observed benefit of orbital atherectomy, there is still no randomized trial directly comparing head-to-head OA to RA.

The Coronary Intravascular Lithoplasty (IVL) System: It is the latest proposed approach for the treatment of heavily calcified lesions; it combines lithotripsy transducers that create the sound waves and a traditional balloon in one device, which essentially retains the same workflow as traditional balloon angioplasties. Thus, IVL utilizes familiar devices for interventionalists, making the technology inherently familiar, easy to learn, adopt, and use on a day-to-day basis. The first clinical experiences supported by intravascular imaging documentation seem very promising and results from larger clinical studies are expected shortly. Intravascular imaging guidance is highly recommended, since it could add a substantial contribution for an optimal debulking.

With the increase of elderly population and a higher prevalence of diabetes mellitus and kidney disease, interventional cardiologists are more likely to encounter complex calcified coronary artery lesions in everyday clinical practice. Such lesions require adequate lesion preparation with properly dedicated devices prior stent implantation, which impacts favorably the acute success rate and likely long-term clinical as an appropriate stent expansion may prevent in-stent restenosis and late stent thrombosis.

CTO/CHIP Toolbox and Technique: What is Trend and New in 2018?

Gerald Werner, MD
Klinikum Darmstadt GmbH, Germany

Opening a chronic total occlusion is the most challenging of coronary procedures that depends so much on the skill and experience of the operator, but also on the available technical tools. What are the most influential developments over the past years that define the techniques of 2018?

The typical approach is based on bilateral catheters, and in many countries, the access route changed from a pure femoral to a combination with radial or even a biradial access. For the microcatheter-based wire manipulation, the number of available catheters has increased considerably. For the antegrade approach, the use of dual-lumen catheters became popular to support parallel wiring and side branch access. In Asia-Pacific countries, the StingRay subintimal reentry device gained wider distribution, although it remains a bailout tool. This is one of the few specific tools developed for chronic total occlusion percutaneous coronary intervention (CTO-PCI) that holds a specific value, while new tools for centering and supporting the penetration of the proximal cap seek practical validation.

The core tool for the procedure is the recanalization wire, and here, the development has made considerable progress over the past years, driven by ASAHI Intecc Co., but now also supplemented by other companies. Both on the antegrade side of the intervention with more torquable wires, and on the retrograde side with even more delicate wires to pass extremely tortuous collaterals, we observed great strides forward, enabling the operators to approach CTOs previously considered technically impossible.

The combination of a CTO procedure with the left ventricular support systems available today extends this interventional option also to those patients with severely impaired left ventricular function, in whom a bilateral or even retrograde approach would lead to a dangerous hemodynamic impairment.

In the SYNTAX II trial, these advances in CTO treatment are reflected as one of the factors of an improved outcome of PCI in complex coronary anatomy. The challenge now may even switch from the achievement of a technical success to ensure long-term patency comparable to surgical results. Here it remains to be hoped for a revival and improvement in bioresorbable scaffolds to provide the ultimate goal of a restoration of coronary anatomy for long occluded coronary lesions without leaving a permanent full-metal jacket behind.

Complex Intervention Sessions
Complex PCI: Make It Simple!

›› Tuesday, May 01, 8:30 AM - 9:40 AM
›› Room 104, Level 1

Valve Symposium

Mitral Valve-in-Mitral Annular Calcification (ViMAC): New Options

Transcatheter heart valve (THV) therapy has now established itself as one of the treatment options for patients with aortic stenosis. Confidence in this technology has led to its use in novel indications such as in the treatment of a degenerated bioprosthetic surgical heart valve (SHV). Multiple reports of valve-in-valve (VIV) procedures have appeared in the literature during the last five years with substantial experience acquired in treating degenerated SHV in aortic position, with increasing experience in mitral, tricuspid and pulmonary positions. Initial experience was limited to the two devices, i.e. Sapien/Sapien XT/Sapien 3 (Edwards Lifesciences Ltd, Irvine, CA) and CoreValve/Evolut R (Medtronic Inc, Minneapolis, MN). During early clinical experience, the focus was in implanting the THV device in the correct position, but it became obvious that there are unique problems associated with VIV therapy, such as

Continued on page 12

Hot Topics

Valve Symposium

Continued from page 11

Vinayak Bapat, MD

Columbia University Medical Center, USA

increased gradients, especially in small size SHVs, risk of coronary artery obstruction and malposition including embolization. With the availability of newer devices, which can be repositioned and retrieved, the ability to assess possibility of complication before release of the device has become a reality with reduced incidence of complications.

Clinical and bench research has provided excellent guidance for VIV, as success of a VIV procedure is based on correct identification of the surgical valve, choosing the correct size of the transcatheter aortic valve implantation (TAVI) valve and its subsequent accurate placement. VIV aortic and VIV Apps are now available to address majority of clinical situations.

VIV experience has now been widened newer indications, such as failed stentless valves, failed mitral repairs, failed tricuspid repairs and mitral annular calcification (MAC). Due to the nature of the device size and delivery system, only Sapien THV platform has been used for these indications. Mitral VIV and valve-in-ring (VIR) can be associated with left ventricular outflow tract obstruction and delayed embolization. This can also be an issue with Sapien in MAC. Sapien THV is balloon expandable, and hence, once deployed, it cannot be retrieved and repositioned. However, the recent Lotus THV (Boston Scientific) has been used to treat failed SHV and rings in mitral position. Lotus THV can be deployed fully and result is assessed before release. The valve can be repositioned for optimal position and can even be retrieved fully if the result is unsatisfactory. Similar experience with another THV platform, i.e. Directflow has now been reported.

Although these new indications and use of new devices are promising, we have to be cautious and understand the strengths and limitations of this expanding therapy area. Information with regards to planning and tips and tricks is available on the Valve-in-Valve Aortic and Mitral apps via App store and Google market.

Morning Roundtable Forum: Meet the Experts over Breakfast
Complex Valve Intervention

›› Tuesday, May 01, 7:00 AM - 8:00 AM
›› Valve Theater, Level 1

Transcatheter Aortic Valve Replacement (TAVR): Key Insights from Quality of Life Studies

David J. Cohen, MD

Saint Luke's Mid America Heart Institute, USA

Patients with severe symptomatic aortic stenosis (AS) benefit from replacement of the aortic valve in terms of both survival as well as quality of life. Although prolonged survival remains a key benefit of valve replacement for patients with AS, for many patients (who are generally elderly and have multiple comorbid conditions), improved health status and quality of life (QOL) are equally important considerations.

Over the past decade, Saint Luke's Mid America Heart Institute has been involved in a number of studies evaluating the quality of life benefits of TAVR — both compared with medical therapy (for inoperable patients) and surgical AVR (for patients at intermediate and high risk). From these studies, a number of key insights have emerged. The first, and most important in many respects, is that quality of life improves substantially after TAVR — even for inoperable/extreme risk patients. Among surviving patients, our team found that compared with medical therapy, TAVR led to substantial gains in both disease-specific and generic health status. Disease-specific health status, which was assessed using the Kansas City Cardiomyopathy (KCCQ) questionnaire, improved by an average of 13 points at 1 month, 21 points at 6 months and 26 points at 12 months (a 20-point improvement on the KCCQ is considered a clinically large change). And generic health status, as assessed by the physical and mental component subscales of the SF-36 improved by 5-6 points at 1 year (roughly comparable to a 10-year reduction in age).

Over the past 5 years, our group has developed and validated a series of statistical models and risk scores that can be applied at the bedside to predict poor outcomes of TAVR. These models have consistently identified a number of factors associated with a poor outcome of TAVR, which include worse baseline QoL, lower mean aortic valve gradient, use of home oxygen, dementia, higher serum creatinine, history of atrial fibrillation/flutter, and diabetes. In addition, frailty (defined mainly on the basis of slow gait speed, physical inactivity, and fatigue/exhaustion) as well as disability contribute modestly to these predictive models. Although these risk models are a substantial advance in our ability to identify patients who are unlikely to benefit from TAVR, it should be noted that even the highest risk patient subsets have a 20-25% chance of a favorable outcome of TAVR (defined as survival for at least 1 year with a KCCQ-OS score ≥60).

Clearly, additional research is necessary to identify other factors (such as specific echocardiographic features, or possibly biomarkers) to further refine our ability to make accurate predictions for individuals. Until such factors are identified and more accurate predictive models are developed, the judgement of the heart team and informed shared decision-making will remain critical in determining which patients should and should not undergo TAVR.

Valve Symposium
Live Case & Lecture Session III, IV

›› Tuesday, May 01, 8:30 AM – 12:30 PM
›› Valve Theater, Level 1

Moderated Complex Case Competition

Successful Resuscitation of Cardiac Arrest Caused by Spontaneous Coronary Artery Dissection in the Left Main Trunk with Cutting Balloon Angioplasty and Stenting

Hiroshi Okumura, MD

Tokyo Bay Medical Center, Japan

The clinical presentation of spontaneous coronary artery dissection (SCAD) relates to the extent and rate of dissection, as well as the degree of myocardial ischemia. Sudden cardiac death could occur in patients with left main coronary artery dissection. Late morning today, Dr. Hiroshi Okumura from Tokyo Bay Medical Center, Japan, will present a catastrophic case of left main SCAD.

A 42-year-old Japanese male presented to the cardiology clinic, complaining of an episode of severe chest and back pain, which occurred five days prior to the visit. His initial ECG revealed no significant ST segment abnormalities. A few minutes later, he complained of severe chest pain and went into ventricular fibrillation, which was treated with immediate defibrillation. Follow-up ECG shortly after defibrillation showed ST-segment elevation in leads I, II, aVL, and V3–6, with reciprocal change in leads, aVR, aVF, and V1-2. Coronary angiogram showed a dissection of the entire left coronary system with TIMI 1 flow. There was 90% stenosis in the proximal left anterior descending artery (LAD), a total occlusion of the mid LAD, 75% stenosis in the proximal left circumflex artery (LCX) and 99% stenosis in the distal LCX. Intra-aortic balloon pump was placed and percutaneous coronary intervention (PCI) of the left coronary artery was performed. Intravascular ultrasound (IVUS) revealed the dissection of LAD, which extended into the left main trunk (LMT) with a narrowed true lumen compressed by an extensive false lumen filled with hematoma. Similar findings were confirmed in the LCX. Initially, the team performed a cutting balloon angioplasty of the LAD to create communications between the true and false lumens, aiming for the reduction of the compression and restoration of the distal coronary flow. A 3.0 mm cutting balloon was inflated to 12 atm in the distal segment of the LAD. After ballooning, coronary flow remained TIMI 2 flow. Subsequently, they treated the LCX with a 3.5 mm cutting balloon dilated to 12 atm. After ballooning, LCX flow was immediately restored to TIMI 3 flow. Assuming that the 3.0 mm balloon was not enough in size to re-canalize the LAD, they used a 3.5 mm and 4.0 mm cutting balloon in the mid LAD, respectively. As the result, the LAD flow further worsened to TIMI 1. Since IVUS revealed the extension of the hematoma into the LMT, they considered that additional ballooning would not be effective and decided to implant a drug eluting stent into LAD-LMT segment. After stenting, LAD flow was restored to TIMI 3.

Dr. Hiroshi Okumura explains that "in the treatment of SCAD, revascularization with combination of the cutting balloon and the stent is effective. IVUS findings are crucial to determine the choice of appropriate device and techniques to restore the coronary flow".

Moderated Complex Case Competition I 1-9. Complex PCI

›› Tuesday, May 01, 11:00 AM - 12:20 PM
›› Case Zone I, Level 1

TCTAP 2018 Live Case Site: Severance Hospital in Korea

1. Please tell us about your institution and any interesting facts on the location
Severance Cardiovascular Hospital, located in Seoul, is the one of the specialized hospitals affiliated Severance Hospital, the founder of modern medical science in Korea established by Kwang Hye Won in 1885 together with a missionary doctor, Dr. Horace N. Allen. Within the Severance Cardiovascular Hospital, our department of cardiology and cath lab performed coronary artery balloon dilatation for the first time in Korea back in 1983, and it has been serving for national cardiovascular health as the leading organization among numerous medical institutions in Korea. In particular, the Cardiovascular Research Center carries out its reputable research on stent development, atherosclerosis, cardiovascular catheterization laboratory system for animal studies, and many others.

2. What types of procedures do you focus on? How does your team approach unique and/or complex cases?
First, our team is interested in the coronary chronic total occlusion (CTO) interventions, and we have held annual meetings to discuss the techniques and development of CTO devices during live case demonstrations with international experts. Second, our team focuses on the imaging-guided coronary interventions, including intravascular ultrasound (IVUS) and optical coherence tomography (OCT). Third, our endovascular team intervenes numerous peripheral interventions including aorta interventions and collects procedural data. Fourth, structural heart team, which is composed of cardiac imaging specialists, cardiac anesthesiologists, and surgeons, is interested in the interventions of TAVR, left atrial appendage occlusions, adults congenital heart disease, and so on. Lastly, as interventional cardiologists, our team also focuses on the acute management of the patients with acute myocardial infarction. With the effort to shorten the time of revascularization in cases of emergency interventions, our most recent cath lab opened located inside of the Emergency Room last year!

3. What types of research does your group focus on? Have there been any significant publications from your site over the past 5 years?
Our team focuses on the research of imaging-guided interventions, including investigation of the mechanisms of stent failure. We are also interested in the optimal medical treatment of the stent-treated patients. Our team has published the findings from randomized trials that demonstrated the superiority of the IVUS guidance in CTO lesions (CTO-IVUS trial) and diffusion in long lesions (IVUS-XPL trial). As for the medical treatment, our team has studied the appropriate duration of the dual-antiplatelet therapy through randomized trials, including the RESET trial. Recently in the DETECT-OCT trial, we reported the strut coverage with OCT in patients receiving new-generation drug-eluting stents, and its implications for dual-antiplatelet therapy continuation.

4. What are you most looking forward to at TCTAP 2018?
First of all, we are looking forward to demonstrating the practical live cases with complex interventions and structural heart diseases with the newly-developed devices. Also, we are anticipate to hear outstanding research achievements performed especially at the Asia-Pacific centers in the field of interventional cardiology.

Coronary Symposium
Live Case & Lecture Session V
›› Tuesday, May 01, 10:00 AM – 11:15 AM
›› Coronary Theater, Level 1

21st KCTA Symposium

Annual Conference for Cardio-vascular Nurse & Technologist Joint Program with TCTAP 2018

TCTAP 2018 KCTA symposium, which has about 400 members participating each year, will be held on May 1st in Coronary Theater, Level 1. Welcoming its 21st year, TCTAP 2018 KCTA symposium will invite nurses and technologists working in the cardiovascular field to provide sessions on current knowledge, theories and cases related to chronic total occlusion (CTO), endovascular treatment options, transcatheter aortic valve replacement (TAVR) and complex percutaneous coronary intervention (PCI).

Part I: 'Featured Lecture 1' will focus on the recent issues of device and wire selection in CTO lesion by discussing on the theoretical background and cases. Meanwhile, 'Endovascular: Selection of DEB, BMS, DES or Atherectomy Devices' will provide an opportunity to discuss on the characteristics of the devices used for intervention treatment in endovascular and related latest knowledge. Furthermore, newest updates on TAVR and current status will be shared to provide an overview of the recent treatment outcomes and an opportunity to foresee the future advancement of TAVR.

Part II: For 'Invited Invited Lectures from Korea & China & Japan', five lecturers from Korea, Japan and China will be invited to present and discuss on imaging tools, such as fractional flow reserve (FFR) and intravascular ultrasound (IVUS), quantitative flow ratio, and imaging-based CTO-PCI database. This annual held international session among Korea, Japan and China has been providing a valuable time for the three countries to share their experiences, and promote both academic development of society and active interactions.

Part III: 'Learn the Technique from Case' will feature complex PCI cases to discuss and share on treatment strategy, how we can overcome of complication situation, and procedural tips and tricks.
This year, in particular, continuing education for nurses and technologists who work in the intervention field will be offered from April 30th to May 1st. Through continuing education, radiographers and nurses working in the cardiac intervention field will have the opportunity to obtain continuing education points. On that thought, we would like to extend our gratitude to TCTAP secretariat, nursing association and Seoul Radiological Technologists Association for their support. This year's TCTAP 2018 KCTA symposium will receive 10 points for KCTA continuing education.
Nurses and radiographers will receive 8 and 2 points, respectively.
We hope to provide nurses and technologists an opportunity to exchange, discuss and acquire knowledges through this symposium. Aforementioned sessions will be held on May 1st, from 1:00 PM – 3:55 PM in Coronary Theater, Level 1. See you all again at the session.

21st KCTA Symposium
›› Tuesday, May 01, 1:00 PM – 3:55 PM
›› Coronary Theater, Level 1

Yesterday's Highlights

Glorious Best Presenters from Competition Session

A number of interesting abstracts were submitted from all over the world to TCTAP 2018 this year, which were strictly reviewed by the scientific committee to be presented at the Moderated Competition.

Approximately 94 authors gave presentations at the Moderated Abstract and Case Competition Session and only 15 presenters were selected as the Best Presenters after evaluation.

Best Abstract Presenters from Abstract Zone

1-4. Structural Heart Disease:
Luca Testa (Italy)

1-5. Endovascular Intervention:
Han Cheol Lee (Korea)

1-6. Miscellaneous:
Quang Phan Tan (Vietnam)

2-4. DES & BVS:
Sean Tan (Malaysia)

2-5. DES & BVS:
Sean Tan (Malaysia)

2-6. Imaging:
Hashrul Rashid (Malaysia)

Best Case Presenters from Case Zone

1-4. Complex PCI:
Shozo Ishihara (Japan)

1-5. Complex PCI:
Chun Hung Su (Taiwan)

1-6. Complex PCI:
Sohail Q. Khan (UK)

2-4. Complex PCI:
Chun Kai Chen (Taiwan)

2-5. Complex PCI:
Luca Testa (Italy)

2-6. Complex PCI:
Keisuke Nakabayashi (Japan)

3-4. Endovascular:
Chun-Wei Lee (Taiwan)

3-5. Endovascular:
Hitoshi Anzai (Japan)

3-6. Endovascular:
Han Cheol Lee (Korea)

CardioVascular Research Foundation would like to thank
TCTAP Daily Newspaper Committee
for their time and effort dedicated to this year's newspapers

Editor in Chief

Advisor **Seung-Whan Lee, MD**
Asan Medical Center

Chief **Duk-Woo Park, MD**
Asan Medical Center

Editors

Jung-Min Ahn, MD
Asan Medical Center

Se-Whan Lee, MD
Soon Chun Hyang University Cheonan Hospital

Se Hun Kang, MD
CHA University CHA Bundang Medical Center

Chang Hoon Lee, MD
Seoul Veterans Hospital

Jong-Young Lee, MD
Kangbuk Samsung Hospital

Jun-Hyok Oh, MD
Pusan National University Hospital

Pil Hyung Lee, MD
Asan Medical Center

Jae Seok Bae , MD
Gyeongsang National University Changwon Hospital

Jong Seon Park, MD
Veterans Health Service Medical Center

Gyung-Min Park, MD
The Catholic University of Korea, Daejeon St. Mary's Hospital

Hyun Woo Park, MD
Soon Chun Hyang University Bucheon Hospital

Mineok Chang, MD
Seoul St. Mary's Hospital

Chulhyun Lee, MD
Keimyung University Hospital Clinical Trial Center

Do-Yoon Kang, MD
Asan Medical Center

Min Soo Cho, MD
Asan Medical Center

Osung Kwon
Asan Medical Center

Kyusup Lee, MD
Asan Medical Center

Jung Ae Hong, MD
Asan Medical Cente

Ungjeong Do, MD
Asan Medical Center

Euihong Ko, MD
Asan Medical Center

Guest Editors

Min Suk Lee, RT
Asan Medical Center

Hyeon Jin Lee, RN
Asan Medical Center

CardioVascular Research Foundation Editors

Kyung-Ae Kim
Executive Director, Convention Div.

Moon Na
Director, Convention Div.

Hee Won Kim
Manager, Convention Div.

Zuellig Pharma Specialty Solutions Korea Ltd Productions Editors

In Sook Kim
Medical Writer, Medical Team

Kathy Heyjung Kim
Medical Writer, Medical Team

TCTAP Daily Newspaper is published during TCTAP 2018 as a service to all who attend.

CVRF
CardioVascular Research Foundation

24th CARDIOVASCULAR SUMMIT

TCTAP2019

April 27–30, 2019
COEX, Seoul, Korea

Call for Submission

July 16, 2018~

www.summit-tctap.com