

21st CARDIOVASCULAR SUMMIT
TCTAP 2016

DAILY NEWS

Today's Highlights

Opening of TCTAP 2016

9:15 AM - 9:45 AM
Main Arena, Level 3

TCTAP Award 2016 "Master of the Masters"

9:45 AM - 10:00 AM
Main Arena, Level 3

Coronary & Valve Symposium

2:00 PM - 6:10 PM
Coronary & Valve Theater, Level 1

Endovascular Symposium

2:00 PM - 6:00 PM
Endovascular Theater, Level 1

Focused Workshops

2:00 PM - 6:00 PM
The Latest Update "Presentation Theater", Level 1

Satellite Symposia

Morning Roundtable Forum @7:00 AM
Lunchtime Activities @12:45 PM
Evening Symposium @6:00 PM

Moderated Abstract & Case Competition

2:00 PM - 6:30 PM
Abstract & Case Zone, Exhibition Hall, Level 3

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Welcome Message

Inside TCTAP 2016 'Unceasing Change and Evolution'

Welcome to TCTAP 2016, the platform of medical exchange in the field of cardiology. TCTAP has been making the history of unceasing change for two decades. With the success of past meetings, TCTAP has been offering a top-notch scientific and educational program providing a

more precise direction that leads to better treatment options for cardiovascular patients. With the coming of the 21st anniversary, it continues to gain momentum as the must-attend conference that inspires the next generation in the cardiovascular field. Through **Interaction**, you could get **Inspiration** and bring **Innovation** to your practice after this amazing conference.



Seung-Jung Park, MD
Asan Medical Center,
Korea

The following changes will be highlighted at TCTAP in 2016.

New Organization; Bring the New Way of Thinking

TCTAP is thrilled to introduce the newly organized course directors of TCTAP 2016: Drs. Myeong-Ki Hong, Bon-Kwon Koo, Cheol Whan Lee, and Seung-Jung Park from

Korea, and Drs. John Robert Laird, Jr, Martin Bert Leon, Gary S. Mintz, and Gregg W. Stone from the USA. This distinguishing line up of course directors will undoubtedly pave the new way of thinking and provide guidance for this conference with their unique perspectives and experience

over the next four days.

TCTAP Pre-workshop Course; More Profound Contents

TCTAP fellowship course is reborn under the name "TCTAP Pre-workshop Course with enhanced contents on interventional cardiology".

Continued on page 16

10th CTO Live 2016

Yesterday, the 10th CTO LIVE was successfully held with more than 300 attendees. CTO LIVE is primarily based on live cases and lectures as well as interactive sessions on experts' cases with many of the world's leading experts in the field of CTO PCI. This year, 8 live cases were successfully performed with intensive discussions with operators, panels, and audiences through interactive communication. Since 2007, we have performed 82 CTO cases with an average success rate of 96 percent – far exceeding any other CTO conferences around the globe.



Kenya Nasu, MD
Toyohashi Heart Center,
Japan

accompanying side branch such as LAD ostium, it is very difficult to confirm the proximal cap of the CTO from angiographic findings alone. After the penetration of the CTO cap, the confirmation of wire position is associated

with procedural results. IVUS findings from the side branch show not only the position and hardness of the proximal cap but also the size of CTO vessel. Therefore, we can estimate the difficulty of penetration of the CTO cap and confirm the wire position after penetration. **2) IVUS guided re-wiring from sub-intimal space to true lumen.** IVUS guided re-wiring is the last resort in antegrade approach.

Continued on page 10

IVUS-guided Rewiring during CTO-PCI

IVUS is one of the most important modalities in coronary intervention. In CTO-PCI, IVUS gives us useful information to achieve successful results. Mainly, the roles of IVUS in CTO PCI are as follows. **1) Identification of proximal cap in cases with no stump CTO.** In cases of no stump CTO with an



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Go to the page 4 for more information!



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General information

Shuttle Bus

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

Certificate of Attendance

Certificate of Attendance for TCTAP 2016 will be distributed along with the badge.

- Tuesday, April 26 - Thursday, April 28 @ Registration Booth, Level 3
- Friday, April 29 @ Registration Booth, Level 1

Free Mobile Recharge

- Lounge, Exhibition Hall, Level 3
- Lounge, Grand Ballroom Lobby, Level 1


Lost and Found / Coat Room

- Tuesday, April 26 - Thursday, April 28 @ Coat Room, Level 3
- Friday, April 29 @ Registration Booth, Level 1

Tour Information

Tour information will be provided by COSMOJIN TOUR.

- Tuesday, April 26 - Thursday, April 28 @ Main Arena Lobby, Level 3
- Friday, April 29 @ Registration Booth, Grand Ballroom Lobby, Level 1



THE 6TH TCTAP AWARD
MASTER OF THE MASTERS
Find out this year's Glorious Master!
Wednesday, April 27, 9:45am
Main Arena



Invitation to the ACT Tour at TCTAP 2016

We would cordially invite you to ACT Tour to experience ACT Program at Asan Medical Center.

How to register • *First Come, First Served Basis*
 On-site registration: ACT Desk at CVRF Booth (3F, COEX)

Pick-up place
 ACT Banner next to Information Desk (Lobby, 1F, COEX)

Participants
 12 persons per section

Program (For 2 hours)
 Move to the Asan Medical Center (Duration: 30 min)
 Presentation and Q&A (Duration: 20 min)
 Cathlab, CCU Tour & the Other Facilities (Duration: 40 min)
 Return to the COEX (Duration: 30 min)

Time Table

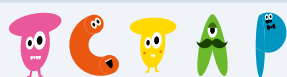
Date	Section	Departure Time
April 27 (Wed.)	Tour 1	4:00 pm
April 28 (Thu.)	Tour 2	10:00 am
	Tour 3	4:00 pm

• For more about ACT Program, please visit to www.cvrf.org

Secretariat of Cardiovascular Summit-TCTAP 2016
 CardioVascular Research Foundation (CVRF)
 Tel. 82-2-3010-4792 / Fax: 82-2-475-6898
 E-mail: yuyun@summitMD.com
 URL: www.cvrf.org / www.summitMD.com

All's in FACEBOOK!

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CVRF booth

Main Arena Lobby, Level 3

"Let's Meet TCTAP Friends!"

5 lovely new friends will be with us this year!

Please find animated TCTAP sculptures and pose for the camera together! The photo will be printed on-site and if you post this photo on facebook, you will get a special present.

Don't miss out to make precious memories with TCTAP!



www.facebook.com/SummitTCTAP

TCTAP Wrap up Interview



TCTAP Wrap-up Interviews are 30-minute moderated interview sessions in an open studio. The purpose of these interviews is to address professional knowledge and experience on selected topics in detail with the world's leading experts in the field of vascular medicine. TCTAP participants are able to watch the interview live during the meeting in designated spots.

Wednesday, April 27

Bioresorbable Vascular Scaffolds

11:15 AM - 11:45 AM

Moderator: Patrick W. Serruys
 Interviewees: Stephen G. Ellis, Michael Haude, Philip M. Urban

ACS and Pharmacotherapy

12:00 PM - 12:30 PM

Moderator: Gregg W. Stone
 Interviewees: David J. Cohen, Roxana Mehran, Freek W. A. Verheugt

Peripheral Intervention

2:25 PM - 2:50 PM

Moderator: John Robert Laird, Jr.
 Interviewees: Lawrence A. Garcia, Krishna Rocha-Singh, Kazushi Urasawa

Thursday, April 28

Vulnerable Plaque

8:30 AM - 9:00 AM

Moderator: Ik-Kyung Jang
 Interviewees: Akiko Maehara, Evelyn Regar, Gregg W. Stone

Left Main Disease

9:10 AM - 9:35 AM

Moderator: Antonio Colombo
 Interviewees: Seung-Jung Park, Gregg W. Stone, David Paul Taggart

TAVI

11:00 AM - 11:30 AM

Moderator: Martin B. Leon
 Interviewees: Alain G. Cribier, Eberhard Grube, Susheel Kodali

The finished interviews will be broadcast on our websites at www.summit-tctap.com, www.summitmd.com and www.youtube.com/CVRFevents and TCTAP mobile application during and after the meeting.

Operating Hours



Tuesday 26 7:00 AM _ 7:00 PM
 Wednesday 27 6:00 AM _ 7:00 PM
 Thursday 28 6:00 AM _ 7:00 PM

Program at a Glance : Wednesday, April 27, 2016

	Main Arena Level 3	Coronary & Valve Theater Level 1	Endovascular Theater Level 1	Presentation Theater Level 1	Room 105 Level 1	Room 203 Level 2	Room 2A Level 3	Exhibition Hall Level 3	Abstract Zone I Level 3	Abstract Zone II Level 3	Case Zone I Level 3	Case Zone II Level 3	Case Zone III Level 3	
07:00		Morning Round Forum 7:00AM-8:10AM												
08:00														
09:00	Opening & Live Case 8:15AM-10:00AM													
10:00														
11:00		TCT @TCTAP 2016 10:00AM-12:30PM	VIVA @TCTAP 2016 10:00AM-12:30PM											
12:00														
01:00		Lunchtime Activities 12:45PM-1:45PM						Exhibit 9:00AM-6:00PM						
02:00														
03:00		Live Caes & Lectures TAVR / BRS 2:00PM-6:10PM	Live Caes & Lectures Ilio-Femoral SFA BTK 2:00PM-6:00PM	Focused Workshop Imaging Physiology ACS & Pharmacology 2:00PM-6:00PM	ACC-i2 @ TCTAP 2:00PM-2:56PM				Moderated Abstract Competition Endovascular & Other 2:00PM-6:30PM	Moderated Abstract Competition Structural Heart 2:00PM-5:10PM	Moderated Complex Case Competition Acute Coronary Complex PCI 2:00PM-6:10PM	Moderated Complex Case Competition Complex PCI 2:00PM-6:10PM	Moderated Complex Case Competition Complex PCI Endovascular 2:00PM - 6:00PM	
04:00					CCT @TCTAP 3:00PM-4:30PM									
05:00					CIT @TCTAP 4:30PM-6:30PM									
06:00														
07:00				Evening Symposium 6:00PM-7:30PM										
08:00					Evening Symposium 6:30PM-8:25PM									

※ Please refer to TCTAP 2016 Mobile App or Final Program book for the specific program information.

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Live Case Transmission from World-Renowned Medical Centers



Columbia University Medical Center, New York, USA

- 8:15 AM - 9:15 AM @ Main Arena, Level 3
- Operator(s): Jeffrey W. Moses



National University Heart Center, Singapore

- 3:30 PM - 4:30 PM @ Coronary & Valve Theater, Level 1
- Operator(s): Huay Cheem Tan, Joshua P. Loh



Monash Medical Center, Victoria, Australia

- 5:00 PM - 5:40 PM @ Coronary & Valve Theater, Level 1
- Operator(s): Ian T. Meredith AM



Asan Medical Center, Seoul, Korea

- 2:00 PM - 3:00 PM @ Coronary & Valve Theater, Level 1
- Operator(s): (Case #1) Seung-Jung Park, Sung Han Yoon
(Case #2) Jung-Min Ahn, Eberhard Grube
- Echo Interpreter: Ran Heo
- 3:00 PM - 4:00 PM @ Endovascular Theater, Level 1
- Operator(s): (Case #1) Robert Bersin, Chang-Hwan Yoon
(Case #2) Seung-Whan Lee, Jae-Hwan Lee, Young Rak Cho
- 5:40 PM - 6:10 PM @ Coronary & Valve Theater, Level 1
- Operator(s): Alain G. Cribier, Kentaro Hayashida, Sung Han Yoon
- Echo Interpreter: Ran Heo
- 5:00 PM - 6:00 PM @ Endovascular Theater, Level 1
- Operator(s): (Case #3) Kazushi Urasawa, Young Rak Cho
(Case #4) Ravish Sachar, Jong-Pil Park

Invasive Imaging

Imaging-Guidance for Bioresorbable Scaffolds Implantation



Evelyn Regar, MD
Erasmus Medical
Center-Thoraxcenter,
Netherlands

Optimal scaffold implantation technique is crucial for the patient's prognosis as recent observations in patients presenting with scaffold failure (Karanasos A et al. *Circ Cardiovasc Intervent* 2015) suggest scaffold underexpansion, malapposition and incomplete lesion coverage as major contributors to failure. However, angiography is a poor tool to visualize coronary dimensions because of its poor validity and high variability (Girasis C et al. *Catheter Cardiovasc Interv* 2012), while OCT provides the correct lumen dimension (Tsuchida K et al. *EuroIntervention* 2007).

Invasive imaging can provide the operator with all the necessary information on the lesion and vessel metrics in a safe (van der Sijde J et al. *Eur Heart J Cardiovasc Imaging* 2016), efficient and reliable way. Pre-interventional imaging is extremely helpful for assuring optimal scaffold selection, placement and expansion as well as adequate lesion preparation whenever needed. This is of note, as bioresorbable scaffolds differ from metallic (drug-eluting) stents in a number of properties besides being resorbable by the human body that are

important to recognize. The scaffold struts are relatively thick, the scaffold crossing profile is relatively high, the available range of different scaffold diameters and lengths is limited, the scaffold is not radiopaque and, importantly, the scaffold should not be postdilated above the nominal diameter, as this can cause scaffold fracture.

Invasive imaging guidance of scaffold implantation is highly recommended, especially in more complex lesions, lesions requiring more than one scaffold, thrombosed lesions and in all cases with ambiguous angiography. It can also guide potential treatment of vulnerable plaque (lipid-rich and/or TCFA). The risk of periprocedural myocardial injury and the need for complete lesion coverage should be considered for the procedure.

The Critical Role of Lesion Preparation for BRS: Effects of Plaque Morphology, Components, and Novel Devices



Giulio Guagliumi
Ospedale Papa Giovanni
XXIII, Italy

Lesion preparation is crucial for an optimal scaffold result. In recent ABSORB studies with BRS, acute gain with BRS was significantly smaller than DES (1.41 vs. 1.58 mm, $P < 0.0001$) and device success rate per lesion was lower with BRS (95.6% vs. 99.4%, $P < 0.0001$, Stone GW et al. *Lancet* 2016). Failure to achieve proper luminal diameter and scaffold apposition could lead to an increased rate of scaffold thrombosis and target lesion failure (Ishibashi Y et al. *J Am Coll Cardiol Interv* 2015). But in daily practice, intravascular imaging is not routinely being used for preparation (7%) and sizing (14%) (Tamburino C et al. *Eurointervention* 2015).

BRS has less radial force than DES, so inadequate lesion preparation may correlate with underexpansion. Preparing the lesion with 1:1 NC (or semicompliant) balloon to reference diameter is recommended and BRS should not be implanted into lesions that cannot be adequately prepared. For diffuse or fibrocalcified lesions, debulking devices like cutting balloon,

scoring balloon or rotablator can be used to optimize scaffold deployment. After lesion preparation, Intravascular imaging (particularly OCT) can give more accurate information on BRS sizing and plaque characteristics. BRS requires more careful sizing because undersizing can lead to scaffold malapposition and increased stent thrombosis risk (Raber et al. *JACC* 2015), while oversizing can lead to increased footprint and side branch occlusion (Kawamoto et al. *JACC Interv* 2016). Intravascular imaging can also help to avoid underexpansion, edge injury, and malapposition during the procedure.

After BRS implantation, post-dilation with high-pressure non-compliant balloon (a maximum of nominal scaffold size + 0.5 mm) to confirm full expansion of the BRS is recommended. In a recent study (Caiazzo et al. *Int J Cardiol* 2015), high post-dilatation rates (over 90%) and pressure (over 20 atm) were associated lower rate of

stent thrombosis. After the procedure, Dual antiplatelet therapy should be prescribed for no less than 6 months and preferably for 12 months. For optimal procedural result and patient outcome, the scaffold is important, but the doctor is also important.

THE CRITICAL ROLE OF LESION PREPARATION FOR BVS: PRACTICAL CONSIDERATIONS

1. BVS should not be implanted into lesions that cannot be adequately prepared
2. Prepare the lesion with 1:1 NC (or semi-compliant) balloon to reference diameter
3. Use intravascular imaging or the pre-dilation balloon for sizing (QCA tends to underestimate)
4. Properly select scaffold diameter relative to proximal ref. vessel diameter (but check tapering!)
5. Low threshold for debulking devices in complex lesions settings (diffuse, fibro-calcific)
6. Post-dilate with high pressure non-compliant balloon (a maximum of nominal scaffold size + 0.5 mm, making sure that full expansion is achieved)
7. Prescribe dual anti-platelet therapy for no less than 6 months and preferably for 12 months

Scaffold is important, but doctor is also important.

Figure 3.

Focused Workshops Imaging

- » Wednesday, April 27, 2:00 PM - 3:30 PM
- » The Latest Update "Presentation Theater", Level 1

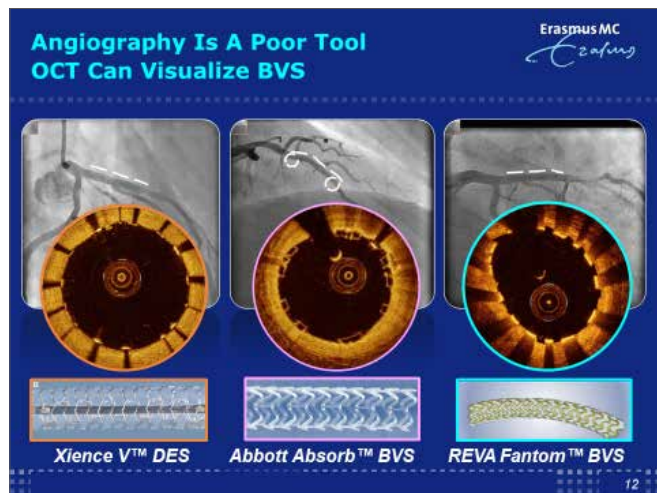


Figure 1.

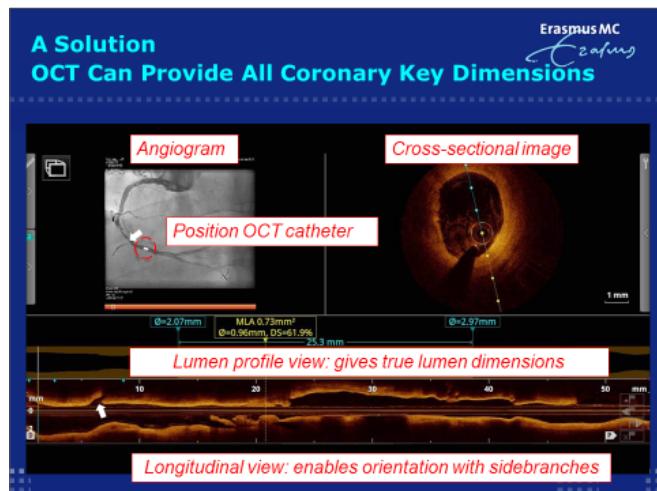


Figure 2.

TCTAP is in your hand!

Download TCTAP mobile app. to navigate the conference and plan your schedule.

- Browse the program and exhibition**
- Real time Live Case Demonstrations & Video On-Demand
- Access full program information
- Find sessions, events and faculty
- Exhibitors & Exhibit hall information

- Interact with experts**
- Send your questions
- Download presentation slides
- Review and rate all abstracts and cases presented

- Plan your schedule**
- Schedule to create a customized agenda
- Take notes

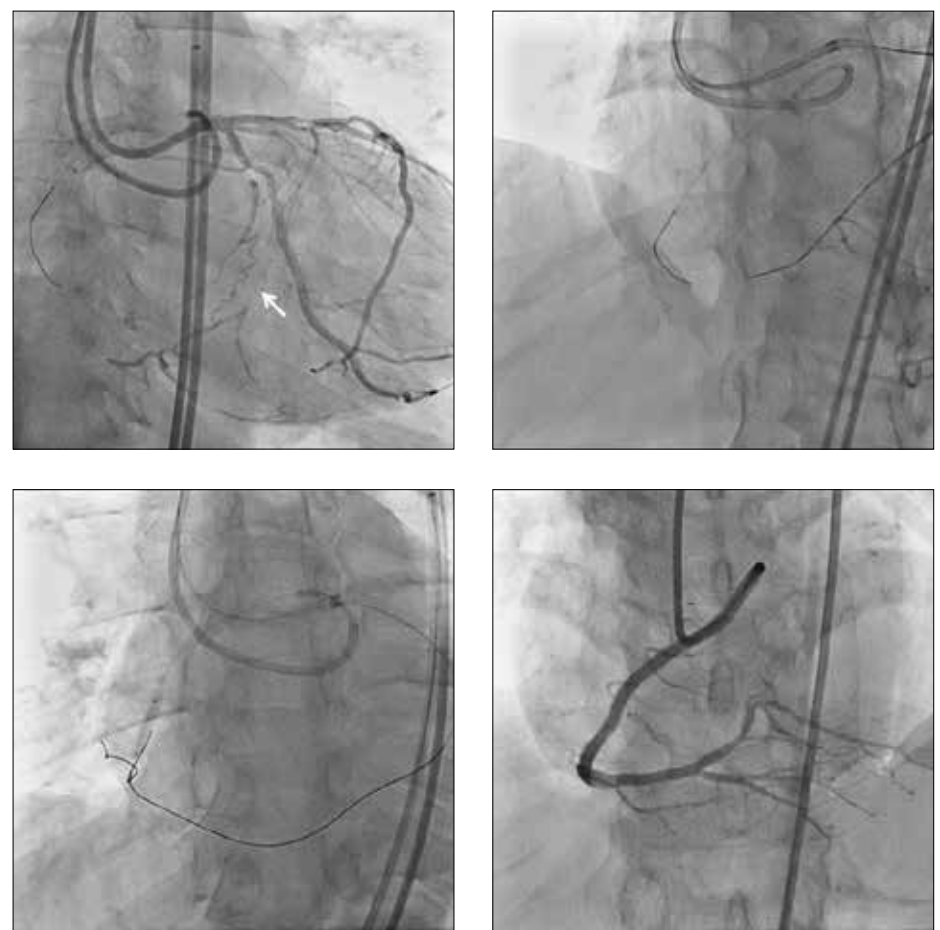
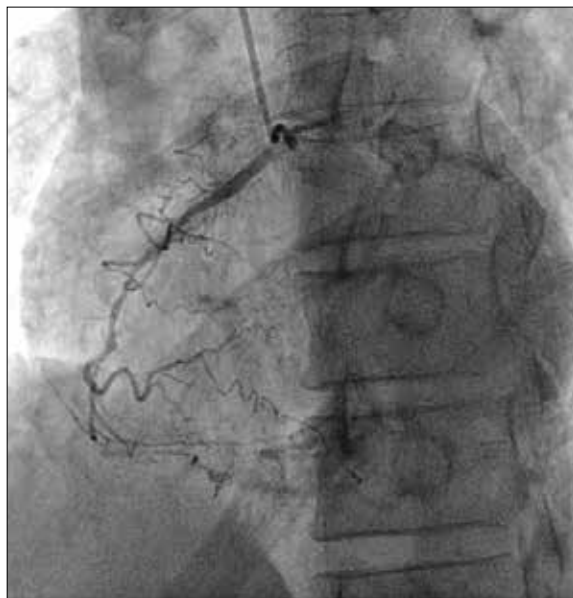
- Look into TCTAP**
- Video recordings of highlights and Wrap-up Interviews
- Receive real time reminders and updates
- View the latest news and general information
- Navigate the venue map

Yesterday's Hot Lives



A 53 year-old male suffered from effort related chest pain for 3 months. Myocardial perfusion imaging showed large sized inducible perfusion defect at RCA territory. Echocardiography showed normal left ventricular ejection fraction without any regional wall motion abnormality. Coronary angiogram showed an anomalous origin of RCA with a CTO at the mid-portion. The CTO lesion did not have a stump and was accompanied with a side branch. This lesion ended at the bifurcation point of PDA and PL branch.

RCA, which had an origin from left co-rorary cusp, was engaged with a Gui-dezilla™ (Boston Scientific) extender catheter, supported by the AL2 guiding catheter. A small epicardial collateral from mid-LCX to PL branch (white arrow) was selected for the retrograde approach. After successfully tracking the tortuous epicardial collateral artery with SUOH 03 guidewire and Caravel 2.6 Fr microcatheter, the guidewire was externalized after reserve CART. RCA was stented with a full metal jacket procedure, and the final angiogram showed excellent result.



TCTAP 2016 Wrap-up Interview: Bioresorbable Vascular Scaffold

Moderator: Patrick W. Serruys

Interviewees: Stephen G. Ellis, Michael Haude, Philip M. Urban

As technology has advanced from balloon angioplasty to bare metal stents to drug-eluting stents, patient outcomes have progressively improved. However, all metallic stents remain susceptible to very late stent thrombosis and restenosis, which limits long-term event-free survival and means that many patients have to take anti-platelet therapy.

Bioresorbable vascular scaffolds (BVS) were developed to provide mechanical support functions of metallic drug-eluting stents and drug delivery within the first year, and then completely resorb within the next few years, thereby restoring vascular function and improving long-term patient outcomes. Recently, a patient-level, pooled meta-analysis from four randomized trials of the Absorb BVS versus the Xience cobalt-chromium everolimus-eluting stent (CoCr-EES) in 3,389 patients was reported. This analysis showed that 1-year rates of the device-oriented composite endpoint of cardiac death, target vessel-related myocardial infarction, or ischemia-driven target lesion revascularization did not differ significantly between BVS and CoCr-EES. Definite or probable device thrombosis at 1

year also did not significantly differ between BVS and CoCr-EES. In another study-level meta-analysis of the ABSORB series, EVERBIO II and TROFI II suggest that, at 1 year, patients treated with an everolimus-eluting BVS have similar rates for repeat revascularization as those who receive an EES. Although the absolute risk increase of definite or probable stent thrombosis with a BVS was modest, the rate of definite or probable stent thrombosis was two-times higher with the BVS than with the EES after 1 year.

A Propensity-matched comparison of the GHOST-EU and XIENCE V USA Registries analyzed 905 matched pairs of patients. This study showed that, there were no differences between ABSORB BVS and Xience EES at 1 year in terms of a patient-oriented composite endpoint of cardiovascular death, target vessel myocardial infarction, and ischemia-driven target lesion revascularization. BVS is a new technology with thicker struts than current metallic drug-eluting stents, and needs greater attention to procedural technique to achieve optimum results. Strut fracture can occur with excessive over-dilatation, and

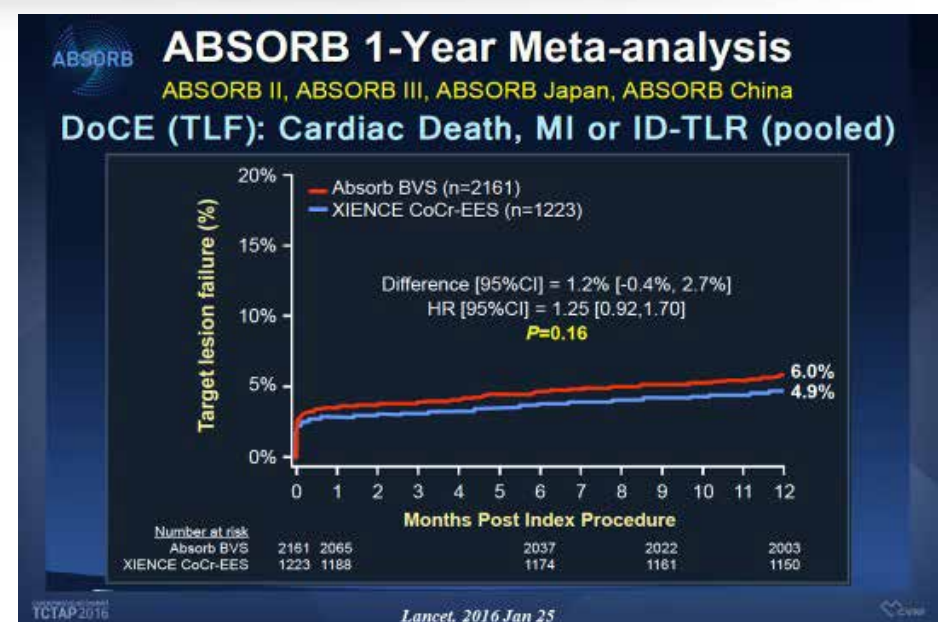


Figure 1. ABSORB 1-year meta-analysis

under-expansion may be associated with increased risks of restenosis and scaffold thrombosis. The greater strut thickness and post-percutaneous coronary intervention in-device diameter stenosis with BVS than with CoCr-EES may have contributed to adverse clinical events.

Improved procedural techniques with BVS such as aggressive plaque modification before BVS implantation, routine high-pressure non-compliant balloon post-dilatation to ensure adequate scaffold expansion, and more frequent use of intravascular imaging to optimize lesion overage and scaffold dimensions may

reduce thrombosis rates. A study with second-generation drug-eluting absorbable metal scaffold (BIOSOLVE-II) showed improved late lumen loss and a favorable clinical and safety profile compared to precursor devices. With improvement of technology and procedural technique, BVS is expected to be a good tool for the treatment of coronary artery disease.

TCTAP 2016 Wrap-up Interview: Bioresorbable Vascular Scaffold

» Wednesday, April 27, 11:15 AM - 11:45 AM

Hot Abstract

Combined Contrast-Induced Acute Kidney Injury and Hypoxic Liver Injury Is Associated with Worse Outcome in Patients with ST Elevation Myocardial Infarction Undergoing Primary Percutaneous Coronary Intervention



Sung Woo Kwon, MD
InHa University Hospital,
Korea

Generally, we thought that contrast-induced acute kidney injury (CI-AKI) and/or hypoxic liver injury (HLI) in patients with ST-elevation myocardial infarction (STEMI) represents the result of poor hemodynamic status. However, the prognostic impact of combined contrast-induced acute kidney injury (CI-AKI) and hypoxic liver injury (HLI) in patients with STEMI who underwent primary percutaneous coronary intervention (PCI) is unclear. Dr. Sung Woo Kwon from InHa University Hospital, Korea, et al. presented their analysis of the clinical outcome of patients with combined contrast-induced acute kidney injury (CI-AKI) and hypoxic liver injury (HLI), results from their INTERSTELLAR registry. A total of 668 consecutive patients (77.2% male, mean age 61.3±13.3 years) with STEMI who underwent primary PCI were analyzed. CI-AKI was defined as an increase in serum creatinine of ≥ 0.5 mg/dL or 25% relative rise, within 48 h after index procedure. HLI was defined as \geq

2-fold increase of serum aspartate transaminase above the upper normal limit at admission. Patients were divided into four groups according to their CI-AKI and HLI states. Major adverse cardiovascular and cerebrovascular events (MACCE) defined as composite of all-cause mortality, non-fatal MI, non-fatal stroke, ischemia-driven target lesion revascularization (TLR) and target vessel revascularization (TVR) were recorded. Over a mean follow-up period of 2.2±1.6 years, there were 94 MACCEs (66 all-cause mortality, 15 non-fatal MI, 7 non-fatal stroke, and 6 ischemia-driven TLR/TVR) with an event rate of 14.1%. The rate of MACCE and all-cause mortality were 9.7% and 5.2% in no organ damage group, 21.3% and 21.3% in CI-AKI group, 18.5% and 14.6% in HLI group, and 57.7% and 50.0% in combined CI-AKI and HLI group, respectively. Survival probability plots of composite MACCE and all-cause mortality revealed that combined CI-AKI and HLI is associated with the worst prognosis ($P < 0.0001$ for both, **Figure 1**). Dr. Kwon concluded that combined CI-AKI after index procedure and HLI at admission is associated with poor clinical outcomes in patients with STEMI who underwent primary PCI.

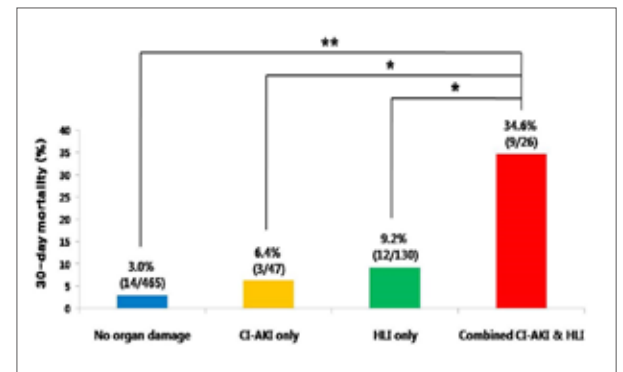


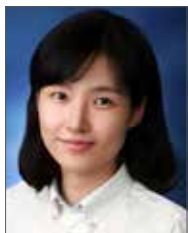
Figure 1. Thirty day mortality between the groups.

Moderated Poster Abstract Competition

» Tuesday, April 26, 2:40 PM - 2:50 PM
» Poster Zone, Level 3

Hot Abstract

Coronary Artery Bypass Graft Surgery vs. Drug-Eluting Stents Implantation for Prior Myocardial Infarction



Mineok Chang, MD
Seoul St. Mary's Hospital,
Korea

Debate about coronary artery bypass graft surgery versus drug-eluting stents implantation for complex coronary lesions is a never ending issue. Patients with prior myocardial infarction (MI) have a high risk of recurrence. Little is known about the effectiveness of coronary artery bypass graft surgery (CABG) versus percutaneous coronary intervention (PCI) with drug-eluting stents (DES) in patients with a prior MI and left main or multi-vessel coronary artery disease (CAD).

Dr. Mineok Chang from Catholic University, Seoul St. Mary's Hospital, Korea, et al. presented their retrospective controlled study to investigate the effectiveness of a CABG surgery versus DES implantation for prior MI. They compared long-term outcomes of these two strategies in 672 patients with prior MI and left main or multi-vessel CAD

who underwent CABG (n=349) or PCI with DES (n=323). A pooled database from the BEST, PRECOMBAT, and SYNTAX trials was analyzed, and the primary outcome was a composite of death from any causes, MI, or stroke. The median follow-up duration was 59.8 months.

The rate of primary outcome was significantly lower with CABG than with PCI (hazard ratio [HR], 0.59; 95% confidence interval [CI], 0.42-0.82; $P=0.002$) (**Figure 1**). Dr. Chang mentioned that "This difference was driven by a marked reduction in the rate of MI (HR, 0.29; 95% CI, 0.16-0.55, $P < 0.001$)". The benefit of CABG over PCI was consistent across all major subgroups. The individual risks of death from any causes or stroke were similar between the two groups. Conversely, the rate of repeat revascularization was significantly lower in the CABG group than in the PCI group (HR, 0.34; 95% CI, 0.22-0.51, $P < 0.001$).

Dr. Chang concluded that "In patients with prior MI and left main or multi-vessel CAD, CABG significantly reduces the risk of death

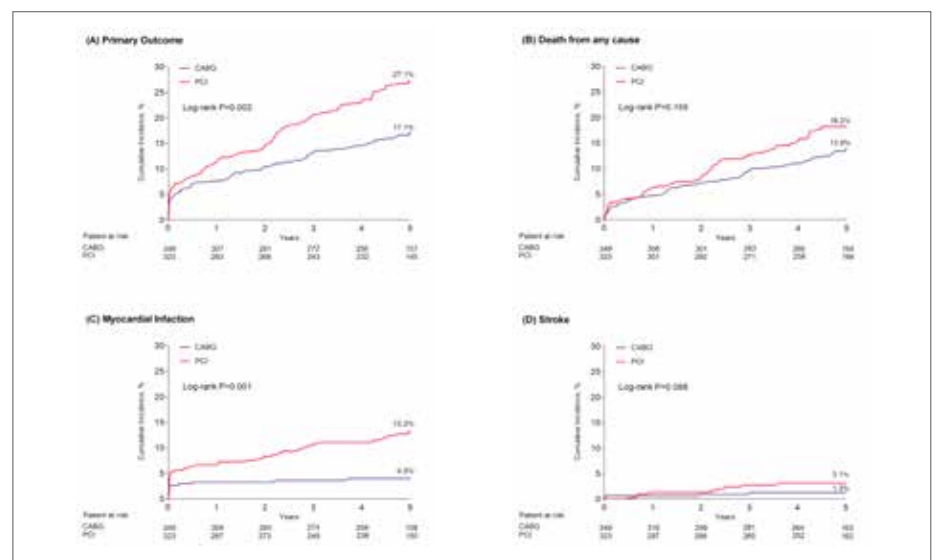


Figure 1.

from any causes, MI, or stroke compared to PCI with DES".

Moderated Abstract Competition I

» Thursday, April 28, 11:50 AM - 12:00 PM
» Abstract Zone I, Level 3

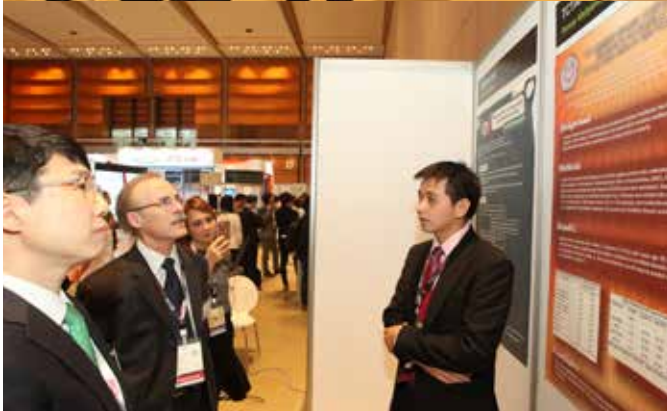
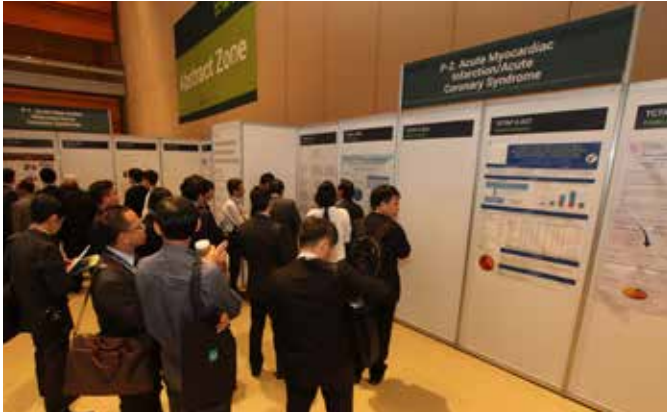
All abstracts and cases presented at TCTAP2016 are published in the online JACC supplement.

Access to full contents online at <http://content.onlinejacc.org> or via TCTAP App.

Yesterday's Highlights

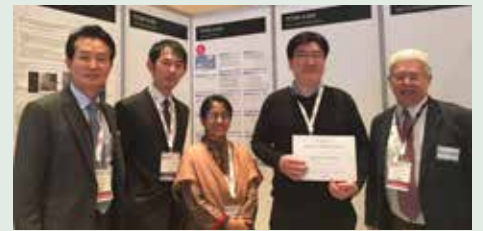
Glorious Best Presenters from Competition Session

A number of interesting abstracts were submitted from all over the world to TCTAP 2016 this year, and then a few abstracts were selected to be presented in Moderated Competition after being strictly reviewed by the scientific committee. Approximately 40 authors made presentation in Poster Abstract Competition Session and only 5 presenters were selected as the Best Presenters by evaluation. Here is the list of the glorious best abstract presenters.

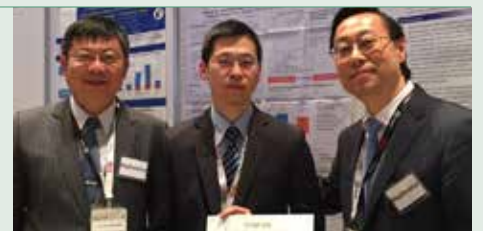


Best Poster Presenter

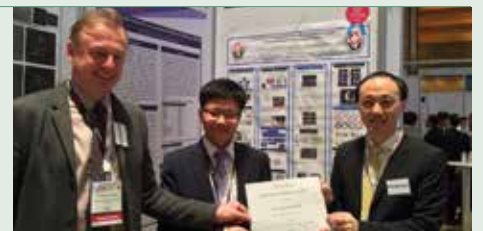
P-1. Acute Myocardial Infarction/Acute Coronary Syndrome
 Combined Contrast-Induced Acute Kidney Injury and Hypoxic Liver Injury Is Associated with Worse Outcome in Patients with ST Elevation Myocardial Infarction Undergoing Primary Percutaneous Coronary Intervention: Results from INTERSTELLAR Registry
Sung Woo Kwon, MD (Korea)



P-2. Acute Myocardial Infarction/Acute Coronary Syndrome
 Improving Door-to-ECG Time in Patients with ST Elevation Myocardial Infarction by an Integrated Approach
Chih-Cheng Wu, MD (Taiwan)



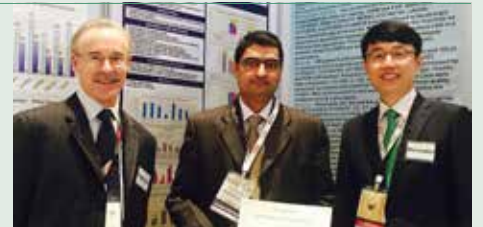
P-3. Complex PCI
 Effect of Polymer-Free Drug-Eluting Stent Coated with Everolimus Using Nitrogen-Doped TiO2 Film Deposition in a Porcine Coronary Restenosis Model
Doo Sun Sim, MD (Korea)



P-4. Imaging
 A Study on Left Atrial Volume and Its Correlation with Clinico-Angiographic Profile in Patients with Acute Myocardial Infarction
Nabarun Roy, MD (India)



P-5. Other
 Effect of Gender and Age on Major Cardiovascular Risk Factors: An Epidemiological Data of 1,508 Adults from India
Sunil Thanvi, MD (India)




Moderated Abstract & Case Competition
 is held from 2:00 PM to 6:30 PM today
 in Abstract & Case Zone, Exhibition Hall, Level 3

Don't Miss the Call for Science 2017
 **July 18 (Mon) – November 4 (Fri), 2016**
 *Only online submission is available via submission website,
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www.summit-tctap.com

After meeting you can enjoy not only all the presentation slides presented, but also video clips of Wrap-up Interview, Live demonstration, photos taken and Daily Newspapers distributed during conference via our official website.



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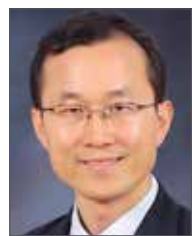


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Physiology

Bifurcation, Tandem and Diffuse Disease



Bon-Kwon Koo, MD
Seoul National
University Hospital,
Korea

Fractional flow reserve (FFR) has been regarded as the gold standard physiologic index to define the presence of myocardial ischemia in a coronary catheterization laboratory. FFR-guided intervention showed a better outcome than angiography-guided percutaneous coronary intervention (PCI) and medical treatment. Therefore, use of FFR has become more popular in daily practice. It is well-known that angiographic evaluation is inaccurate in the assessment of complex lesions such as bifurcation, tandem and diffuse disease. However, the use of FFR for these relatively complex lesions require adequate knowledge on coronary physiology and FFR and experience. One of the most important techniques in using FFR for these complex lesions is adequate "pullback pressure tracing" under stable and maximal hyperemia (**Figure 1**). The operators

interobserver variability, even among experienced operators. Computer-assisted quantitative coronary angiography only marginally improves diagnostic accuracy and its estimate of functional significance. Fractional flow reserve (FFR) is used to determine the functional significance of a coronary stenosis and it has been considered the invasive standard measurement to identify flow-limiting coronary artery stenosis. Subsequent randomized trials demonstrated that FFR safely determined whether a given stenosis required revascularization or not, and showed that FFR-guided percutaneous coronary intervention (PCI) outcome outperformed angiography-guided PCI. Therefore, current guidelines recommend FFR measurement prior to revascularization unless there is objective evidence of ischemia. However, FFR is underutilized in contemporary practice: the rates of use of IVUS and FFR during PCI for intermediate coronary stenoses (40-70% diameter stenosis) are 20.3% and 6.1% respectively.

A trans-lesional functional assessment is an important adjunct to coronary angiography for providing an objective evaluation of stenosis severity. FFR is the ratio of the mean distal coronary pressure (Pd) to mean aortic pressure (Pa) during maximum hyperemia, usually induced by adenosine i.c. bolus or i.v. infusion, and represents the percentage of normal flow across a coronary stenosis. Physiologic stenosis assessment by FFR is a lesion-specific index of epicardial conductance, which is independent of the microvasculature and hemodynamic changes induced by variations in heart rate, blood pressure or myocardial contractility. In the presence of intermediate stenoses, or when there is an apparent discordance between lesion severity, location of ischemia by non-invasive testing and clinical symptoms, FFR provides valuable data for clinical decision-making.

FFR is valid in all non-culprit vessels in non-ST elevation ACS and is valid in most non-culprit vessels in STEMI, with the caveat that STEMI with markedly elevated LVEDP

and impaired global microcirculatory function may result in transiently and falsely elevated FFR. Coronary microvascular dysfunction is defined as abnormal coronary microvascular resistance that is clinically evident as an inappropriate coronary blood flow response, impaired myocardial perfusion and/or myocardial ischemia that cannot be accounted for by abnormalities in the epicardial coronary arteries (**Figure 2**). The assessment of coronary microvascular dysfunction with index of microvascular resistance can be performed safely and relatively easily and help diagnosis in patients with chest pain and no obstructive coronary artery disease.

Prognostic Value of FFR: Insight from IRIS-FFR Registry



Jung-Min Ahn, MD
Asan Medical Center,
Korea

The FFR threshold for detecting ischemia has been corroborated by multiple tests for myocardial ischemia and reflects the functional significance (i.e. ischemic potential) of an epicardial stenosis. To establish an ischemic threshold, FFR was validated in patients with single vessel intermediate lesions and compared with the combination of three different non-invasive stress tests. FFR was first validated using a cutoff value of 0.75. With further experience with the technique, investigators appreciated that by extending the cutoff value to 0.80, the sensitivity of FFR could be improved without greatly compromising the specificity. This is now the recommended ischemic reference standard for the invasive assessment of myocardial ischemia.

To evaluate the utility of FFR for guiding the performance of PCI, the Fractional Flow Reserve versus Angiography for Multivessel Evaluation (FAME) trial randomized 1,005 patients with multivessel

stopped early because there was a highly significant difference in the primary endpoint of death, MI and urgent revascularization favoring the FFR-guided PCI arm. However, the dichotomous cut-off value of FFR (0.80) in decision making was validated in a small study compared with non-invasive functional study. In addition, there have been concerns about applying the results of previous randomized trials in routine clinical practice due to their protocolized characteristics and selective patient enrollment. Moreover, the safety of FFR-guided deferral strategy was compared with PCI using bare metal stents or early generation drug-eluting stents, which now has been shown to be less safe and effective compared with the currently available second generation drug-eluting stent. The Interventional Cardiology Research In-cooperation Society Fractional Flow Reserve (IRIS FFR) registry enrolled 5,846 patients who underwent FFR measurement on at least one coronary lesion. Revascularization according to FFR was generally re-commended as follows: revascularization was performed in coronary lesions with FFR <0.75, and deferred in those with FFR >0.80. For FFR values between 0.75 and 0.80, the decision regarding revascularization was left to the operator's discretion. After follow-up of median 1.9 years, the risk of MACE was not significantly different in the range of FFR ≥0.76 between deferred and revascularized lesions. Only in the lesions with FFR of ≤0.75, the significant benefit of revascularization over deferral

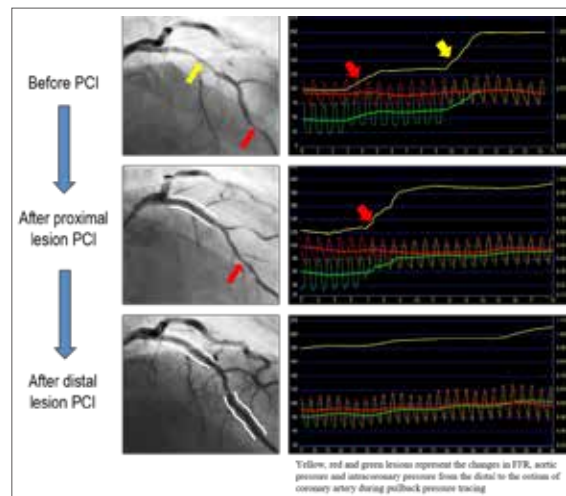


Figure 1.

need to know when and how to perform pullback pressure tracing, how to interpret the recorded pressure and how to make a clinical decision according to the tracings. When used by experienced operators, FFR can reduce unnecessary revascularization and its associated complications in patients with complex coronary artery disease.

Coronary Blood Flow, Pressure and Resistance: How to Integrate, Interpret and Apply in Practice

The rationale for the use of intracoronary physiology assessment and imaging arises from the limitations of coronary angiography, the traditional method for determining the severity of coronary stenoses. The visual assessment of percent diameter reduction has significant



William F. Fearon, MD
Stanford University
Medicine Center, USA

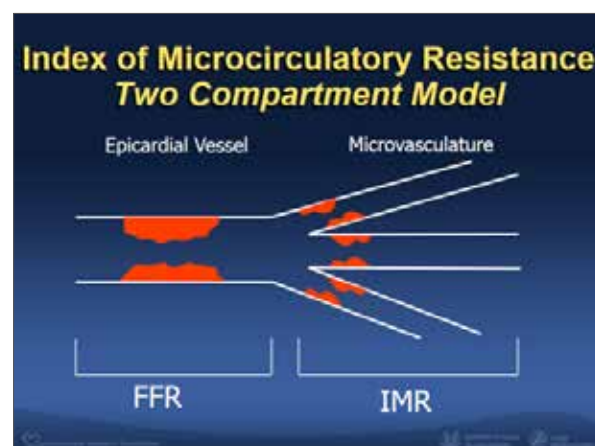


Figure 2. Index of microcirculatory resistance - two compartment model



Figure 3. IRIS-FFR real world registry - adjust hazard ratio: MACE

disease to either FFR-guided PCI or to angiography-guided PCI. The primary outcome was significantly lower in patients who received FFR-guided PCI. To compare outcomes in ischemia-guided PCI with medical therapy, the Fractional Flow Reserve versus Angiography for Multivessel Evaluation 2 (FAME 2) trial randomized 888 patients with single or multivessel SIHD to FFR-guided PCI with optimal medical therapy or optimal medical therapy alone. Enrollment in FAME 2 was

was observed in terms of the risk of MACE (**Figure 3**). These results confirmed the value of current FFR guided decision with a cut off value of 0.80 in revascularization.

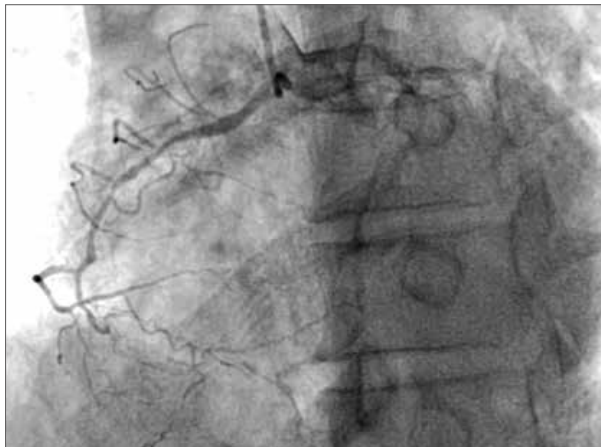
Instead of relying solely on angiographic criteria of severity when there is no stress test present, or when the stress test/anatomy results are discordant, FFR would be the final arbiter, irrespective of lesion severity.

Coronary Physiology and Myocardial Ischemia

» Wednesday, April 27, 3:30 PM - 4:30 PM
» The Latest Update "Presentation Theater", Level 1

10th CTO Live 2016

Continued from page 1



To complete this procedure, it is very important to understand the linkage between angiographic and IVUS findings using the branch method and the wire bias method.

a) Branch method: Although coronary arteries have a three-dimension structure, the findings of angiography and IVUS is shown as a two-dimension structure. In RAO caudal view for LAD (Figure 1), septal branches usually run in a direction where it pops up from the screen. On the other hand, diagonal branches and LCX point to the back of the screen. In IVUS findings (Figure 2), we can see the vessel from 3 o'clock (blue line), thus, the operator is standing at the 3 o'clock position of outside vessel. Therefore, the septal separates to the right side (3 o'clock), and the diagonal branch to left side (9-10 o'clock). From this information, we can understand the location and the morphology such as calcification of true lumen in angiographic findings.

b) Wire bias method: In the wire bias method, the positions of both guidewire and IVUS catheter in angiographic finding are keys to success. In Figure 3, the guidewire is located at the bottom of IVUS catheter. In IVUS findings from sub-intimal

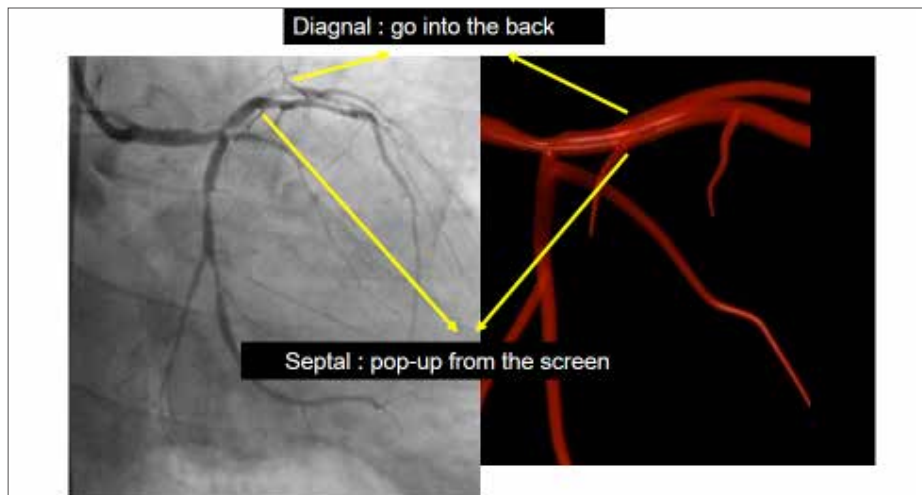


Figure 1.



Reverse CART technique

- Microcatheter : SASUKE, Caravel
- Guidewire : retrograde Ultimate bros 3
- Stent : Promus Synergy
- 2.5 x 38 + 3.0 x 38 + 3.0 x 28
- * CART : controlled antegrade and retrograde subintimal tracking

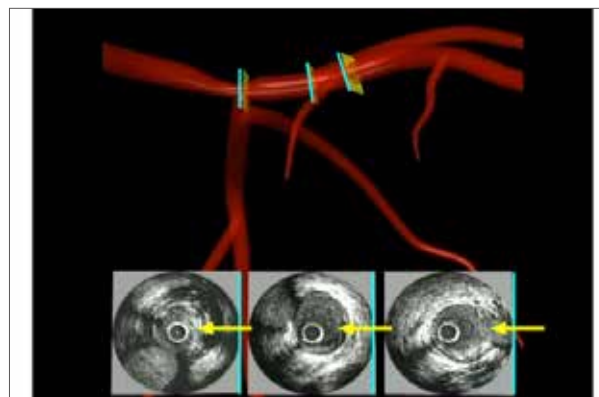


Figure 2.

space, the guide wire is shown on 7 o'clock and the true lumen on 5 o'clock. Thus, the direction of true lumen is in the same direction of guidewire. In pre-procedural angiographic findings, because the bifurcation of the two side branches at ostium of CTO lesion is very clear, we can also use the branch method to identify the position of true lumen (Figure 4).

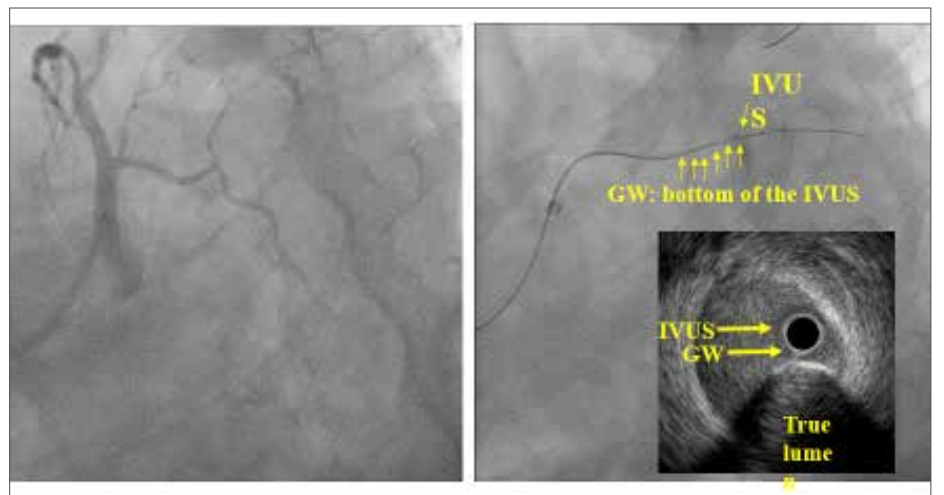


Figure 3.

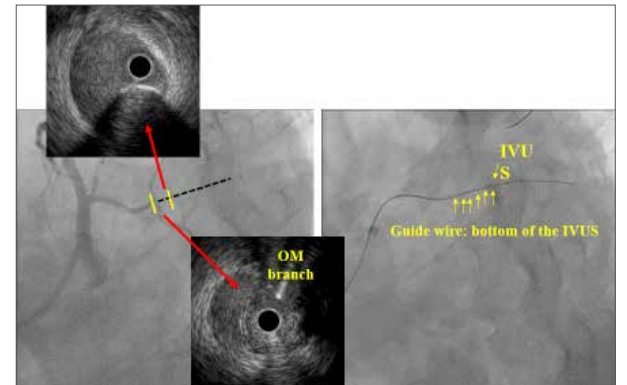


Figure 4.

How do I Ensure Maximal Success in My Antegrade Approach?



Sunao Nakamura, MD
New Tokyo Hospital,
Japan

Although retrograde approach is a unique technique for CTO-PCI and has contributed to the notable improvement of the worldwide procedural success rate, the success rate of antegrade approach has also progressively increased in many institutions after the introduction of dedicated devices and increase in operators' clinical experience. Yesterday, Dr. Sunao Nakamura's lecture introduced the fundamentals and tips of this antegrade approach for CTO-PCI.

The first factor he emphasized for a successful antegrade approach is that operators should be well acquainted with the basic rule of running route of coronary artery. Distribution of coronary artery route is almost standardized and is determined by certain factors. Usually, each different angle projection provides its own general route and a specific coronary artery route can be clearly observed at a certain angle projection. In cases of proximal LAD CTO, you cannot tell the entry point or direction of LAD-CTO at a glance. But if you are fully aware of the general anatomy of LAD, you can predict its running route. However, running route of mid-LCX is quite unpredictable and accordingly, the success rate of CTO-PCI of LCX is relatively low. We cannot conjecture the route of LCX because of unpredictable "Radius of Curvature" (Figure 5).

The second factor was that during PCI, one should select the optimum angle of angiogram projection since the angle that you select for projection during procedure is a critical factor like the operating field for a surgeon. For CTO-PCI, start with the optimum view and try to select 2-orthogonal projections to acquire imaginary 3-D image of the guidewire position.

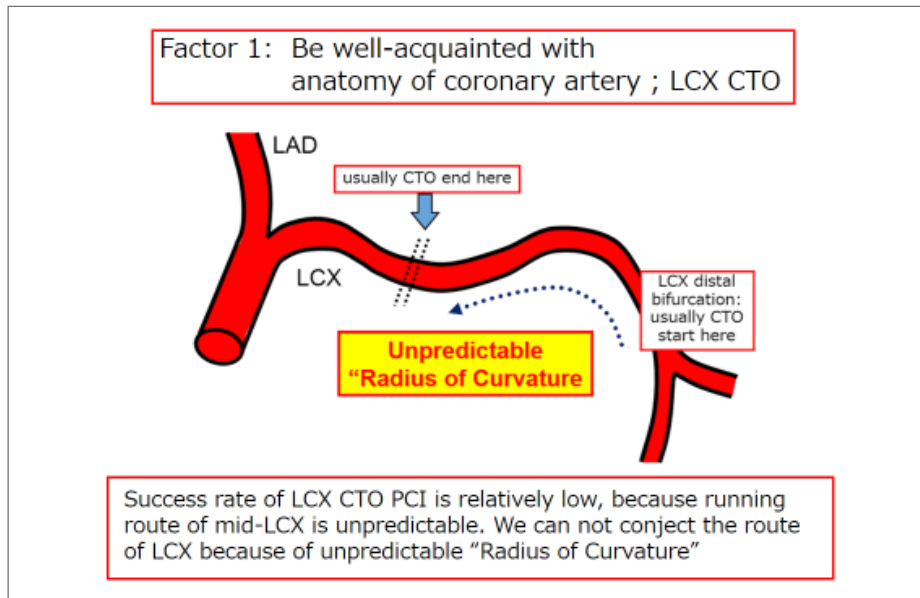


Figure 5. Be well-acquainted with anatomy of coronary artery

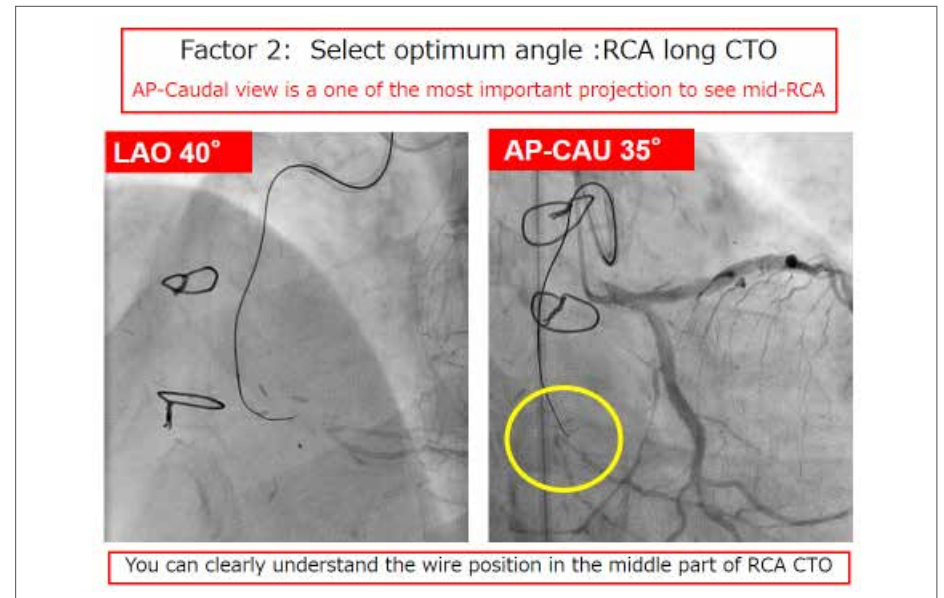


Figure 6. Select optimum angle: RCA long CTO

Combining information acquired from several angle projections provides quite a precise prediction of the route of a CTO. Specifically for long RCA CTO, AP-caudal view is one of the most important projections to see mid-RCA (Figure 6).

Factor 3 was that one should pay attention to hidden hints in the angiogram such as calcification or delayed staining of contrast media to find a good reference for prediction of the target vessel route. Using multiple imaging modalities is also essential. For instance, forming a conjecture of coronary artery route prior to the procedure utilizing CT can be helpful (Figure 7).

Also, in cases when the entry point of CTO is unclear or subintimal space is enlarged causing collateral blurring, conjunctive images using IVUS may be critical.

The 4th factor he advised is that the parallel wire technique is always the core centered technique for antegrade approach. One can use 2nd wire to catch distal true lumen with the landmark of the 1st one. To do it liberally, operators should familiarize themselves with features and characteristics of all available guidewires. Since we now have so many guidewires, knowledge of characteristics of all available guidewires is a step for success and handling them properly is another step for success. Finally, he advised to trust one's gut feeling. "Imagine that the guidewire is your arm and hand, and the wire tip is your finger tip. Now your arm



Yasushi Asakura MD
Kasai Shoikai Hospital,
Japan

and hand is in the coronary artery. Touch the CTO lesion with your finger tip. Feel it and sense it. Slide your finger slowly," he said. Because our battle field is small and the space for guidewire manipulation is so narrow, one should keep their keen senses opened.

Treating CTO Lesions with Imaging Guidance

In CTO PCI, IVUS is used for peculiar purposes. PCI for CTO has been standardized and the procedure is done step by step. The first step is the antegrade approach. In an antegrade approach, IVUS is used in order to identify the entry of CTO. In the case in Figure 8, RCA was totally occluded, and the entry was unclear. So, IVUS was inserted in a side branch, and the main RCA was observed.

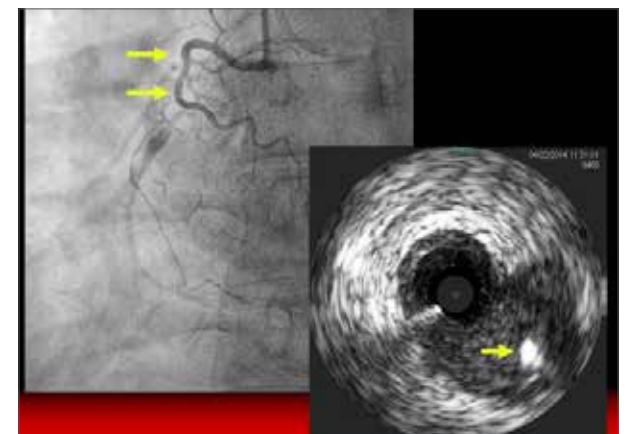


Figure 8.

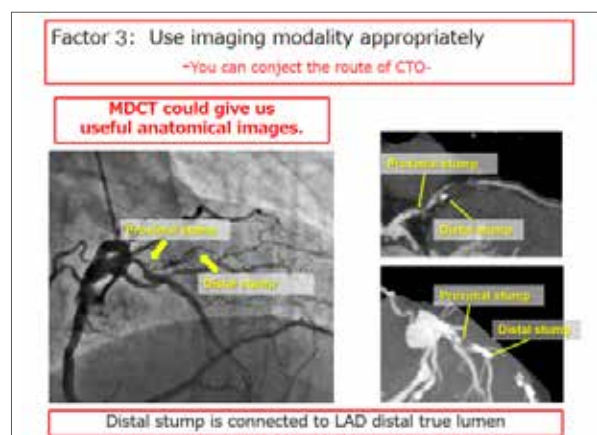


Figure 7. Use imaging modality appropriately

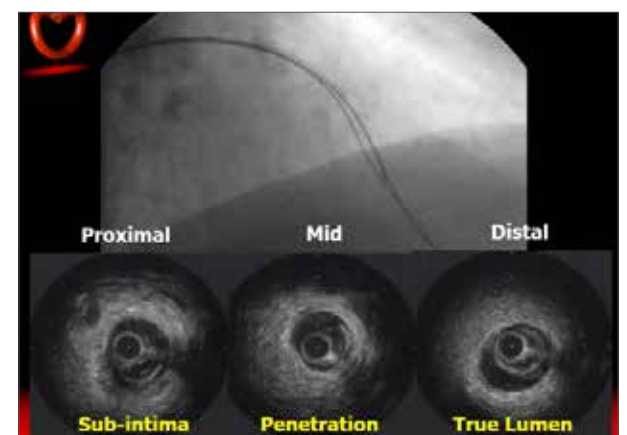


Figure 9.

Continued on page 12

8th Chien Foundation Award for Outstanding Lectureship & Lifetime Achievements in PCI Is Awarded to Dr. David R. Holmes at TCTAP 2016



David R. Holmes, MD
Mayo Clinic, USA

Dr. David R. Holmes from the USA has been selected for the 8th Chien Foundation Award for Outstanding Lectureship and Lifetime Achievement in PCI at TCTAP 2016.

The presentation of this honored award will take place on 27th April 2016 (Wednesday) at 2:56 PM at Room 105, Level 1, COEX.

Dr. David R. Holmes is currently Professor of Medicine at the Department of Cardiovascular Diseases at the famous Mayo Clinic and the Edward W. and

Betty Knight Scripps Professor in Cardiovascular Medicine. He has also served as Director of both Electrophysiology and Pacing and the Cardiac Catheterization Laboratory.

Dr. Holmes has been at the forefront of interventional cardiology for the past three decades. He has contributed very significantly to the growth, advancement, research and teaching of PCI in the USA and across the world. He is a very popular and eloquent lecturer.

Dr. Holmes has also served in many other capacities in interventional cardiology. In 2009, he was Vice President of the American College of Cardiology and a Past President of SCAI. He has been a principal investigator of many studies,

and research projects, and actively participated in many leading cardiovascular journals.

Dr. David Holmes will be long remembered for his many outstanding contributions in the advancement and revolutionary changes in cardiology, which have led to improved outcomes and standards for patient care.

8th Chien Foundation Award

» Wednesday, April 27, 2:56 PM – 3:00 PM
» Room 105, Level 1

Continued from page 11

The 2nd wire was clearly seen in the correct RCA. If an antegrade approach is not successful, the next step would be parallel wire technique. If that also fails, retrograde approach is often performed. And the last resort is IVUS guided wiring. The case in **Figure 9** had CTO at proximal LAD. After failed antegrade and retrograde approach, IVUS guided wiring was tried. In this case, the wire penetrated from the subintimal space into a true lumen. However, this kind of procedure is not ideal. The 2nd wire should run within the intima from the beginning to the end (**Figure 10**).

3-dimensional orientation is important for this procedure. In the case in **Figure 11**, the IVUS catheter and the 2nd wire were the most separated in the RAO view, and they were overlapped in the LAO view. Therefore, in the RAO view, the IVUS image is observed from 3 o'clock.

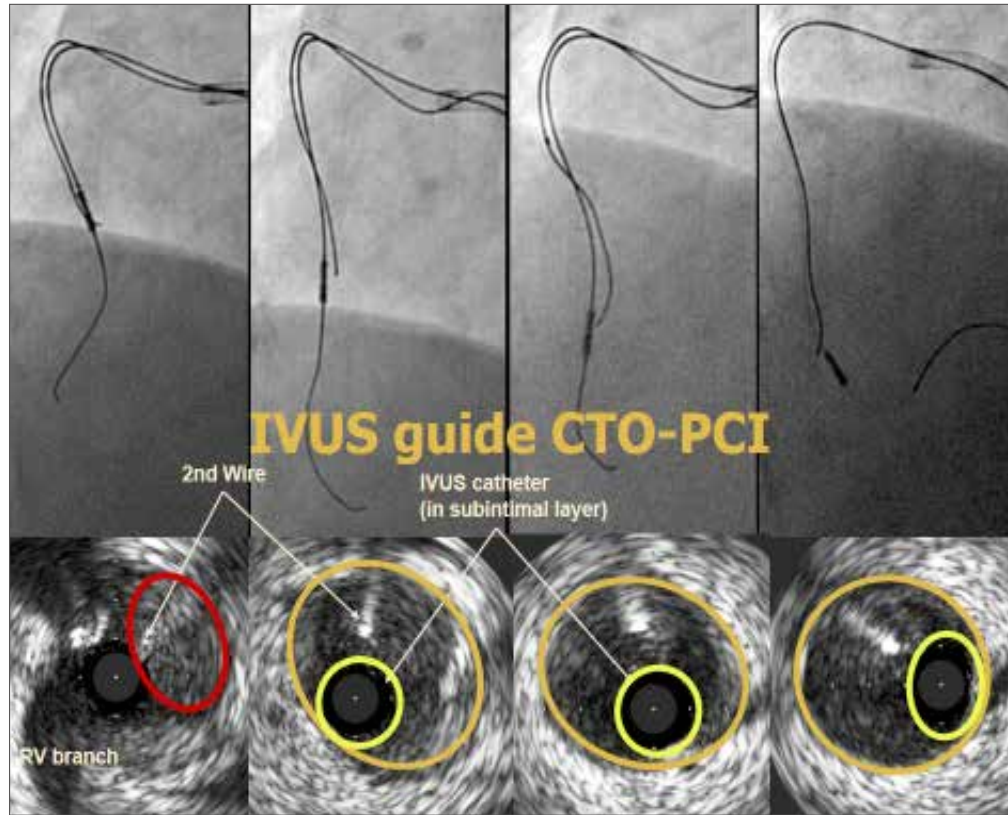


Figure 10.

In **Figure 12**, the IVUS catheter was in 6 o'clock, and the original vessel was in 12 o'clock. So, the 2nd wire should go to right direction in the RAO view. In Japan, Navifocus IVUS is available, and it is easy to understand 3-dimensional recognition using this system. IVUS guided wiring is the final weapon and it should be done before the enlargement of Subintimal space.

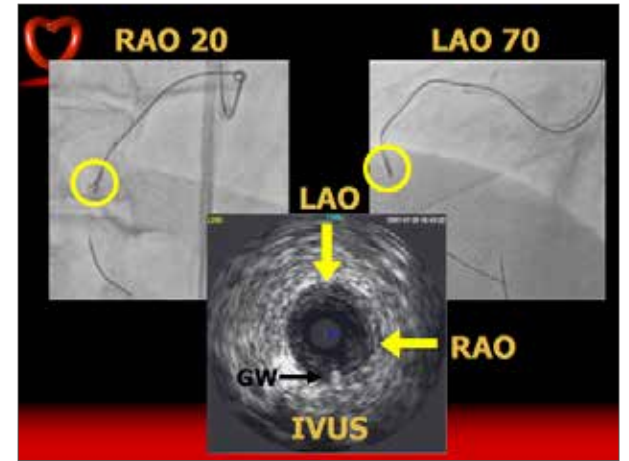


Figure 11.

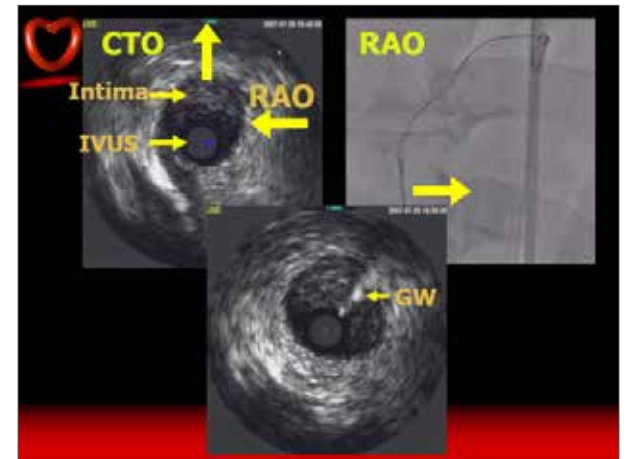


Figure 12.

CTO Live 2016

» Tuesday, April 26, 9:00 AM - 6:00 PM
» CTO Theater, Level 1

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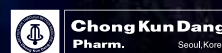
References : 1. Shepherd J. The role of the exogenous pathway in hypercholesterolaemia. *Eur Heart J Suppl.* 2001;3(suppl E):E2-E5. 2. Bays H. Ezetimibe. *Expert Opin Investig Drugs.* 2002;11:1587-1604.

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Come and Feel the heat!! Sweltering heat fills the room, a hot breeze drifts by our face.

First of all, Mark W. Burket (University of Toledo Medical Center, Toledo, Ohio, USA) talked about 'Drug-Eluting Stents in the SFA (Zilver PTX or ELUVIA): Why Not Now? What Is Needed for the Future?' In his article published in the Circulation, Drug-eluting stents (DES) are said to be the default strategy for superficial femoral artery (SFA) intervention in 2015 as they have been evaluated in a large number of patients over a long follow-up period with outcomes superior to other treatment options. No other therapy can make that claim.

When a disease process lacks one definitive cure, a wide variety of marginally effective solutions frequently surface. Such is the case with peripheral occlusive disease. The spectrum of treatment options is broad, ranging from exercise therapy as the least intrusive option, to bypass surgery as the most intrusive. In between these extremes lies a seemingly endless variety of endovascular options.

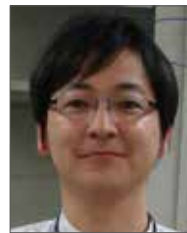
Currently, simple balloon angioplasty and bare metal nitinol stents are no longer in the race. Atherectomy may be appealing but still unproven, even though the basic concept of 'nothing' was left behind because there was a lack of randomized trial data. In contrary, DES has appealing characteristics with proven long term data. Currently two DES (Zilver PTX and Eluvia) are available. Especially, Zilver PTX has the longest follow-up data, which proved it to be effective compared with conventional treatment (Figure 3).

Eluvia is consisted of Primer Layer (PBMA) which Promotes Adhesion of Active Layer to Stent and Active Layer (PTx, PVDF-HFP) which Controls Release of Paclitaxel (0.167 µg PTx/mm² stent surface area), which had over 10 million coronary implants. Eluvia also has different sustained drug release, which showed drug release from the Eluvia system is sustained over time >90% of drug is released at 1 year and drug release coincides with the restenotic cascade. Last year, Majestic trial showed outstanding performance after Eluvia stent (Figure 4).

The second-best strategy for femoro-popliteal atherosclerosis is DEB (drug-eluting balloons). It fails to achieve first place status for several reasons. DEB results are consistently superior to plain angioplasty and has strong appeals of 'nothing left behind'. Even the best of DEB data fall well

short of those available for DES in terms of study design and duration of follow-up. This is not to say that DEB trials are not good, just that DES evaluation has been better. Randomized data are limited, especially long-term data. What we need are 5-year result of DEB, randomized trial comparing DEB and DES, and comparative Eluvia DES results (IMPERIAL). In 2016, DES are not perfect, but are the best there is for now. We know a lot about DES but we need to know a whole lot more !!

What Is the Best Angiographic Endpoint for Revascularization? (Angiosome or "Straight-Line" Flow)



Osamu Iida, MD
Kansai Rosai Hospital,
Japan

What Is the Best Angiographic Endpoint for Revascularization? (Angiosome or "Straight-Line" Flow) by Osamu Iida (Kansai Rosai Hospital, Amagasaki, Hyogo, Japan) was shown. CTO (chronic total occlusion) and TASC-D lesions in the symptomatic patients with peripheral artery disease are frequently observed in more distal regions, which accordingly means higher technical challenge. (Aorto-iliac < Femoropopliteal < BTK) In case of balloon angioplasty in BTK lesions, there are about 40% of repeat procedure, 70% of 3-month restenosis and 97% of 15 minutes early recoil phenomenon. And the recurrence incidence of wound in 3 years is 43.9%, even after successful intervention. Finally, CLI (critical limb ischemia) due to isolated below-the-knee lesion is a wound recurrence predictor (HR: 4.28, P<0.001). Rates of wound healing and limb salvage in patients with CLI were significantly better after angiosome-targeted revascularization (Figure 5).

But there is a big discrepancy between theory and practice in angiosome concept. In clinical practice, moderate limb salvage rates (68-76%) were obtained by indirect revascularization (IR) as shown in earlier studies. However, it remains unclear which patients derive the most clinical benefit from direct revascularization (DR). We should seek determinants of patients with CLI who derive the most clinical benefit from direct revascularization (DR). IR endovascular therapy (EVT) increased the risk of adverse prognosis only in patients with CRP ≥ 3 mg/

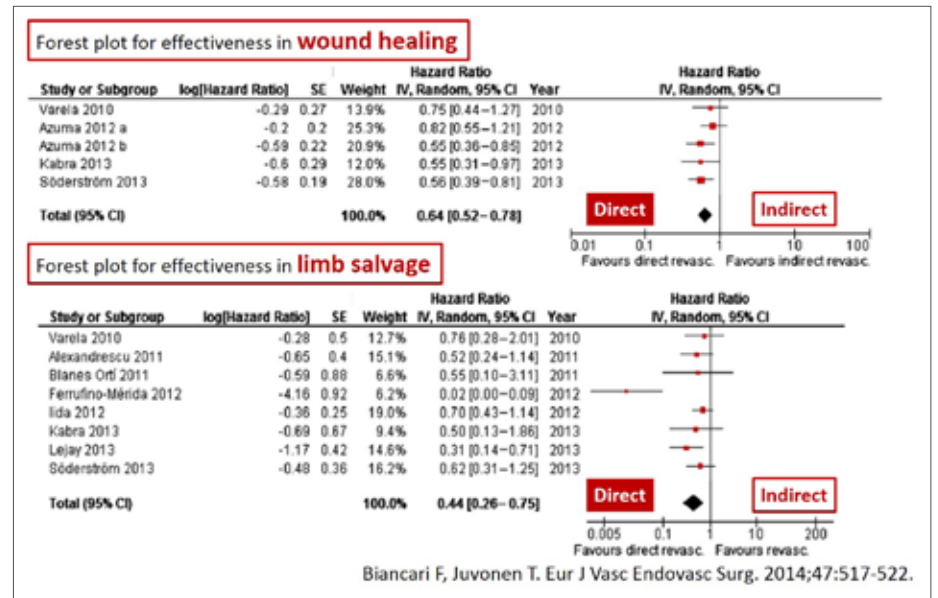


Figure 5.

dL. Based on these results, limb prognosis was equivalent for DR and IR except in the presence of both diabetes and wound infection, where IR had a poorer outcome. The angiosome-oriented revascularization for CLI patients without concurrent wound infection and DM showed no significant differences in terms of amputation and major adverse events. But, after propensity matching of patient characteristics, analysis showed better wound healing in the DR group than in the IR group. The median time to wound healing in the DR group was associated with the speed of wound healing; hazard ratio of DR relative to IR for wound healing was 1.4 (95% CI 1/1-1.8). Overall predictors Not Complete Wound Healing after EVT in CLI Patients due to Isolated BTK Lesions were indirect EVT and BTA (Below the angle) run-off after EVT=0. Therefore, the overall strategy in BTK CLI must be done direction revascularization according to angiosome concept.

What Is the Best Angiographic Endpoint for Revascularization? (Angiosome or "Straight-Line" Flow)

Best Approach Using DCB, Atherectomy, DES or BVS in BTK by Lawrence A. Garcia also shared his cre-dible opinion in management of BTK le-sions. Almost all studies using PTA, BMS atherctomy, DCB, DES deal with infra-popliteal revascularization are for CLI. Data primarily driven with amputation free survival (AFS) as a metric. Primary patency



Lawrence A. Garcia, MD
St. Elizabeth's Medical
Center, USA

is harder to find though newer studies use this endpoint in addition to wound healing. All studies remain incredibly heterogeneous so comparisons are impossible. In BASIL trial, comparing angioplasty and bypass surgery over 3~7 years, there were no significant differences. In AFS and operative survival. Currently presented or published Trials ON DES in BTK lesions, including YUKON, DESTINY and ACHILLES trial, showed higher patency but same limb salvage rate. Atherectomy using laser, rotational device or directional device, showed relatively considerable patency and limb salvage rate in DA-DEFINITIVE LE, CSI-LIBERTY and Pathway-JETSTEAM trial. DCB did not show significant superiority in comparison with plain balloon angioplasty in a large randomized trial.

There are still several studies we are waiting on. In conclusion, about the question 'What is the best approach?', we can infer as all interventions afford AFS. BMS has primary patency poor. Focal DES can show excellent primary patency compared with BMS. Among non-stent technologies, directional atherectomy (DEFINITIVE LE) reported outcomes for popliteal and infra-popliteal disease in both claudicants and/or CLI, and rotational devices (CSI) OASIS claudicant group—LIBERTY forthcoming.

And DCB (IN-Pact DEEP) failed in the largest trial for below knee use and Principal studies using DCB still may be appealing but given the data are still having shortcomings. Current review of data supports revascularization for infra-popliteal disease though choice is at discretion of the physician. Combined therapies for longer lesions seem appealing though larger trials are currently pending.

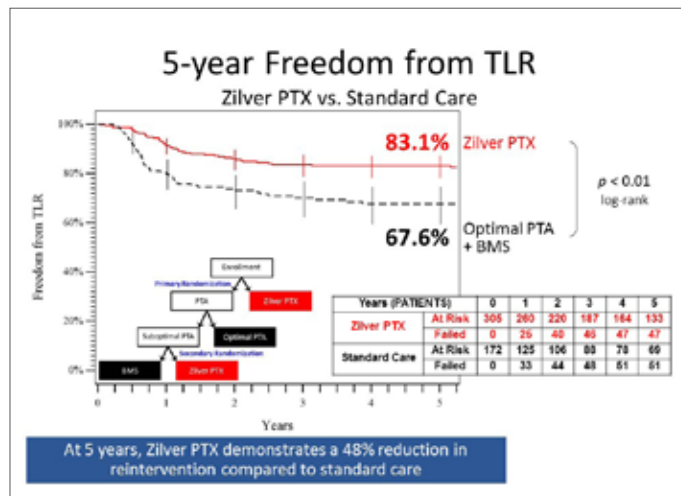


Figure 3.

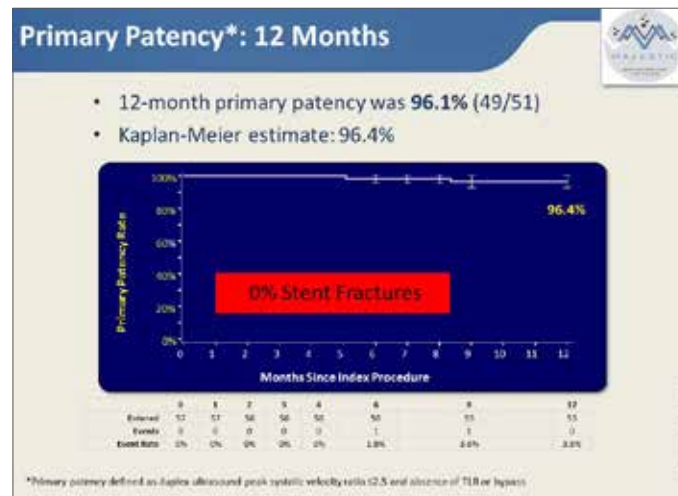


Figure 4.

Endovascular Session I & II

» Wednesday, April 27, 2:00 PM - 5:00 PM
» Endovascular Theater, Level 1

TCTAP 2016 Live Case Site: National University Heart Center in Singapore

Live Cases are being broadcast from world-renowned medical centers during the conference and we have expanded the Live Case Centers to total 11 locations this year. Especially this year, TCTAP Daily Newspaper talked with Dr. Huay Cheem Tan of National University Heart Centers in Singapore which is newly participating in TCTAP 2016 as a Live Case Center.

Please introduce your center and any features that distinguishes it from others.

National University Heart Centre, Singapore (NUHCS) belongs to National University Health System (NUS), a tertiary academic health system in Singapore which has tripartite mission of clinical service, education and research. It offers tertiary and quaternary services to local and foreign patients with 6 major core clinical programmes of acute coronary syndrome, heart failure, structural & congenital heart disease, vascular medicine, heart rhythm disorders and women's heart health. The service is supported by a Cardiovascular Research Institute (CVRI) which provides full spectrum of basic and translational research (including laboratory based research, clinical research, clinical trials, health services, preventive and epidemiology research). It has a uniquely successful overseas cardiology fellowship training

programme which attracts many research and clinical fellows. There have been more than 50 overseas fellows from Asia-Pacific, Europe and South America, trained in interventional cardiology at NUHCS; and they form a huge collaborative research network when they return to their own countries.

What types of cases do you usually focus on? Do you have your own breakthrough on unique and/or complex cases?

NUHCS focuses on complex PCI (including CTO, rotablation) and at the same time performs a large number of primary PCIs (about 500 a year) through its Western STEMI network. It has amassed tremendous experience in developing efficient STEMI work processes (pre-hospital ECG and catheterization laboratory activation) leading to shortening of door-to-balloon time (median D2B in 2015 was 47 minutes) and improvement of clinical outcomes (30-day mortality of 4.9%), which serves as a model for learning for many other countries. Its coronary hybrid revascularization programme involving the interventionists and surgeons in the hybrid operating theatre is also unique. In selected cases, both minimally invasive LIMA grafting to LAD and PCI to other arteries can be performed in the same setting, which helps to reduce morbidity, shortens length

of hospitalization and improves patients' comfort.

The structural intervention programme comprising congenital heart intervention, TAVR, Mitraclip and LAA closure is also well established, with NUHCS doctors frequently providing proctorship to centres around the world to impart its know-how.

What types of studies does your team publish in journals? Please tell us about some interesting publications from your center in the last 5 years.

We have been embarking on areas of research that focus on registry study to evaluate efficacy and safety of new technologies using our big database, atherothrombosis with regard to genotype- pharmacologic interaction and new biomarkers, obstructive sleep apnea and impact on ACS and PCI outcomes, and device innovation. Uniquely, we have developed an extensive research network involving our many ex-fellows in many countries, which allows us to carry out large-scale randomised studies initiated at NUHCS. One of our recent studies on the impact of obstructive sleep apnea (OSA) on cardiovascular outcomes in patients undergoing PCI showed increased long term mortality in patients with the condition. This was accepted for publication in the Circulation journal.

Live Case Sites



What do you expect for the future of intervention cardiology?

Bioresorbable vascular scaffolds are going to be the future in the field of coronary intervention once its limitations in deliverability, scaffold radial strength and thickness, and polymer biocompatibility problems are solved. Percutaneous transcatheter mitral, tricuspid and pulmonary valve will gain increasing importance, just like TAVI has done so for aortic valve diseases, as innovation in device design progresses.

What are you most looking forward to at TCTAP 2016?

A meeting of great minds in scientific sharing and learning in the field of endovascular intervention that we have come to associate TCTAP with over the years.

Live Case Session II. BRS

- » Wednesday, April 27, 3:30 PM - 5:00 PM
- » Coronary & Valve Theater, Level 1

Interesting Performance in Korea



NANTA is a top non-verbal cooking performance show about four chefs who must prepare a wedding banquet in just one hour. The plot is depicted through various genres of performances, including percussion using kitchen utensils to make beats based on traditional rhythms of samulnori (traditional percussion quartet). The entire show has no verbal dialogue, yet plenty of comedy and romance, too.

Meanwhile, since its debut in October 1997, NANTA (also known as Cookin') has earned international acclaim, being staged on Broadway and at other famous venues worldwide.

	Hongdae NANTA Theater	Myeong Dong NANTA Theater	Chungjeongno NANTA Theater
Location	B2F, 357-4, Seokyo-dong, Mapo-gu, Seoul * Takes approximately 30-40 min from COEX by taxi.	Unesco Building 3F, 50-14, Myeong Dong 2 Ga, Jung Gu, Seoul * Takes approximately 25-35 min from COEX by taxi.	476, Chungjeongno 3-ga, Seodaemun-gu, Seoul, Korea * Takes approximately 35-45 min from COEX by taxi.
Time	Monday to Friday 8:00 PM / Saturdays, Sundays and public holidays 2:00 PM, 5:00 PM (Running time: 100 min)	Monday to Friday, Sundays and public holidays 5:00 PM, 8:00 PM / Saturdays 2:00 PM, 5:00 PM, 8:00 PM (Running time: 100 min)	Daily 5:00 PM, 8:00 PM (Running time: 100 min)
Price (won)	Dynamic 70,000/ VIP 60,000/ S 50,000/ A 40,000	Dynamic 70,000/ VIP 60,000/ S 50,000/ A 40,000	VIP 60,000 / S 50,000 / A 40,000

Homepage: <http://nanta.i-pmc.co.kr/>

Ref. Korea Tourism Organization.

www.cvrf.org

ACT Program

Asan Medical Center International Cardiology Training Program

Left Main Intensive Course
FFR & IVUS Guided PCI
CTO LIVE from the Experts
TAVI LIVE

Place_
atrium (Training Center), 3rd Floor,
East Building, Asan Medical Center, Seoul, Korea

Organizing Directors
Seung-Jung Park, MD
Cheol Whan Lee, MD

Catheterization Laboratory Activities

- Live Case Demonstration
- Cath Lab Experience
- Free Discussion in the Training Center during the Procedure
- Dynamic Round Table Discussions
- Asan Medical Center Tour
- Case Presentation & Discussion:
Nightmare Complications-Untangling the Knots!
- Hands-on Learning: FFR, IVUS, VH-IVUS, OCT

and much more...

Evidence-Based Lectures

- DES & BVS Issues
- Technical Tips & Tricks
- Imaging: IVUS, VH-IVUS, OCT, CT, MR, FFR, etc.
- Adjunctive Pharmacology
- Up-to-date Clinical Trials and Registries
- How to Make Good Clinical Trials

and much more...

Registration Site & Contact

Attn: Ms. Hyerim YUN (CVRF)
Tel: 82-2-3010-4792, Fax: 82-2-475-6898, Email: yuyun@summitMD.com

Welcome Message

Inside TCTAP 2016 'Unceasing Change and Evolution'

Continued from page 1

This workshop will provide a comprehensive overview and latest updates on DES&BRS, Valves, Complex PCI (Left Main and Bifurcation), Endovascular Interventions, Invasive & Non-Invasive Imaging and Physiology. The lectures and presentation given by world leading interventional cardiologists will help the attendees to gain a more profound knowledge and know-how on each topic.

Live Case Demonstration; Enlarged live transmission sites

We are truly privileged to have ten world-renowned medical centers transmit variety of cases for live case sessions during the TCTAP 2016. Experts from each field will demonstrate procedures with their own tips and tricks and allow attendees to improve their skills in complex cases. This year will be a great chance to learn various techniques of experts for daily practices of participants.

10th CTO LIVE; Partnership with CCT and Asia-Pacific CTO Club

On the first day of conference, CTO LIVE

brings together the master of CTO and key faculty from the Asia Pacific region. Through the new partnership with AP CTO Club, this program will be presented with featured lectures, live case sessions and practical learning center. It will let the participants take lessons on diverse approaches in the CTO Intervention step by step.

Endovascular Intervention Sessions; Partnership with VIVA

Starting with the new partnership session co-organized by Vascular InterVentional Advances (VIVA), the series of key topics have been expanded to include SFA, BTK, Renal, AAA and Carotid Intervention. The most highlighted issues related to endovascular disease will be on the table for comprehensive review and greater insight.

Opening of TCTAP 2016

- » Wednesday, April 27, 9:15 AM
- » Main Arena, Level 3

Heart Keeper 2016 Event



Heart Keeper 2016	
2:30 PM - 5:35 PM, Main Arena, Level 3	
2:30 PM	Opening
2:40 PM	Talk Concert: Heart Talk I
3:30 PM	Talk Concert: Special Performance
3:50 PM	Talk Concert: Heart Talk II
4:40 PM	Lecture
5:30 PM	Closing



The CardioVascular Research Foundation and Seoul Asan Medical Center Heart Institute have been co-hosting domestic and foreign academic exchange on cardiovascular disorders and cardiovascular intervention. In order to raise public awareness on the treatment and prevention of cardiovascular disorders through the provision of useful information, the Heart Protector 2016 event will again be co-hosted with Seoul Asan Heart Institute this year.

The Highlight Program: "TALK CONCERT"

Anchored by a professional broadcaster, the first session on the topic "Fresh Health Information", and the second session "Escaping Cardiovascular Crisis" will be presented the form of a talk show with

the professors in the Cardiosurgery and Cardiology department of Seoul Asan Heart Institute. Useful information on cardiovascular disorders will be summarized, and EMS staff will recount their various experiences to provide participants with sensible techniques for escaping emergency situations arising from cardiovascular disorders.

Also, the vocal performance and the "Lecture" session for healing the mind and spirit will be a meaningful time for participants to take away something not only for their physical health but also for their mental wellbeing.

Heart Keeper

- » Wednesday, April 27, 2:00 PM - 5:30 PM
- » Main Arena, Level 3

Find out who is up for
the next rising interventional cardiologist.

The 4th TCTAP Best Young Scientist Award Ceremony

Thursday, April 28, 12:25 PM
The Latest Updated Presentation Theater

TCTAP Best Young Scientist Award opens to
ALL young interventional cardiologists!

The award is annually bestowed to one of the young physicians to encourage their academic and clinical work experience with the amount of 5,000 USD.
Submission Opens on July 4, 2016

Apply if you

- Have career within 5 years of the start of their fellowship or training period
- Share your own patient care experience with knowledge and understanding in the clinical practice in TCTAP
- Introduce new, advanced solutions to complicated issues in TCTAP

Contact: Emilie Cho (emiliecho@summitmd.com)

Exhibition Event

Be the Jack Sparrow & find TREASURE

"Visit Five Exhibition Booths And Get Five Logos"

Booth

Visit 5 Booths

Event Paper

Collect 5 Logos

Lucky Draw

Put it in Lucky Draw

The Winners will be given a gift

EVENT DATE

10:00AM - 3:00PM

Tuesday, 26 / Wednesday, 27 / Thursday, 28

Winner Announcement
(3:00PM, During Exhibition Date)

- 1) Text Message
* Please fill up your **PHONE NUMBER** on the event paper.
- 2) Event Screen (Gate A, Exhibition Hall, Level 3)

Notification

- Event paper provided at the Registration Booth
- Photo shoot event for winners

Gift Pick up Desk
: Level 3, D2 Hall Lobby, Exhibition Desk
(Next to the Registration Booth)

Orsiro Clinical Program

From Promising to Proven

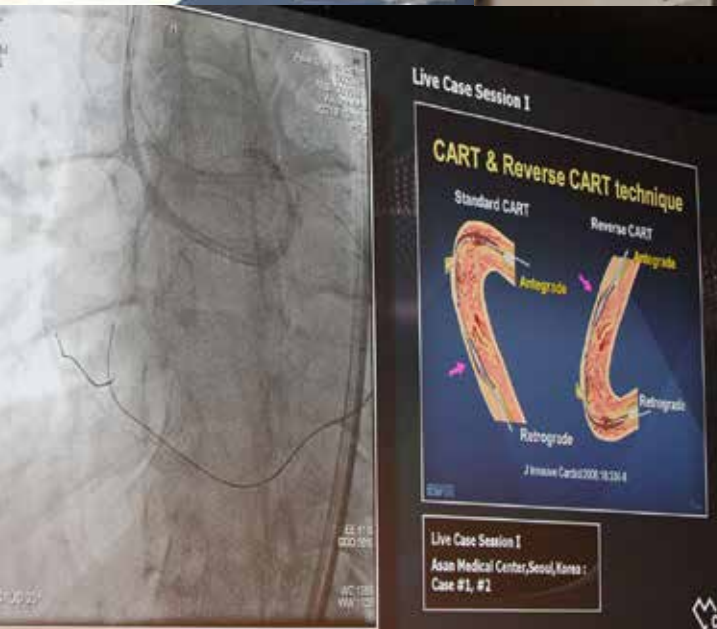


Data available

Data not yet released

*Data on number of patients collected as of March 2016





When it comes to
treating stenosed vessels...

HAVING NOTHING CAN MEAN EVERYTHING

Absorb is a bioresorbable vascular scaffold that dissolves between 2 and 3 years, leaving behind nothing* but a restored vessel—resulting in renewed possibilities for the patient

- REPAIRS stenosed vessels¹
- RESTORES vessel function²
- RENEWS vessel wall structure²



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*OCT images courtesy of RJ van Geuns, Erasmus Medical Center, The Netherlands; De Bruyne B. ABSORB Cohort B 5-year, TCT 2014.

Small platinum markers at scaffold edges remain.

Sources: 1. Serruys, P, et al. *Lancet*. Sept. 2014; [http://dx.doi.org/10.1016/S0140-6736\(14\)61455-0](http://dx.doi.org/10.1016/S0140-6736(14)61455-0).

2. Serruys PW et al. ABSORB Cohort B Presentation. TCT 2015.

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