



### Today's Highlights

#### Breakfast Meetings

- Meet the Experts over Breakfast #1-#7  
7:00 AM – 8:10 AM

#### TCTAP Opening and Session

Live cases & Featured Lectures

- TAVI  
- DES Dilemmas  
- Imaging and FFR  
- "Hot" New Therapies

Main Arena, 8:25 AM – 12:40 PM

#### TCTAP Award 2011 "Master of the Masters"

Main Arena, 12:45 PM – 12:50 PM

#### Live Cases and Plenary Session

Main Arena, 2:00 PM – 6:00 PM

#### TAVI & ACS

Featured Lectures

Mugunghwa Hall 1, 2:00 PM – 4:00 PM

#### SFA Disease

Featured Lectures and Live Cases

Mugunghwa Hall 2, 2:00 PM – 4:00 PM

#### Lower Extremity Disease

Featured Lectures and Live Cases

Mugunghwa Hall 2, 4:00 PM – 6:00 PM

#### Moderated Oral Abstract Competition

Abstract Zone, Level B3, 2:00 PM – 6:00 PM

#### Moderated Complex Case Competition

Case Zone (Ida I), Level B1, 2:00 PM – 6:00 PM

Case Zone (Ida II), Level B1, 2:00 PM – 6:00 PM

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## Grand Opening of 'Angioplasty Summit 2011-TCT Asia Pacific'

Main Arena, Vista Hall, 8:25 AM

The opening of the 16th 'Angioplasty Summit 2011-TCT Asia Pacific' has been announced with hundreds of specialists and experts gathered at the Main Arena, of the Sheraton Grande Walkerhill Hotel, Seoul, Korea on April 27<sup>th</sup>. Back 16 years in history, here is another chapter of the stimulating and proactive scientific program.

This symposium has been dedicated to its mission to bring together medical professional from all over the world, and to exchange new knowledge and ideas in the field of

structural heart disease and integrate the newest interventional techniques and devices related to patient care in the coronary, peripheral and carotid arteries, and structural heart disease. New for the 2011 meeting, the left main and bifurcation summit covers up to date results of recent clinical trials of treating left main and bifurcation lesion, and case-based learning by real case presentation and focused review are concentrated upon FFR, non-invasive imaging, anti-platelet issues and transcatheter valve therapy.



cardiovascular medicine. This interactive course will entirely cover the most relevant issues in this field and provide a great opportunity to obtain the cutting-edge and most advanced Western and European techniques, overviews and clinical studies for the specialized physicians and other health care professionals. More than 3,500 delegates and 500 invited specialists from a wide range of disciplines participate in this conference. The participants can review the latest basic and clinical investigations and learn how to manage optimally the patients with vascular or

The course director of the congress Dr. Seung-Jung Park mentioned in his opening address that he hopes the participants maximize their learning experience from the precious lectures and live demonstrations of worldly renowned experts.

This international scientific congress is working to establish the bridging role between Asia Pacific and Western regions in cardiology. Dr. Park said that they will be working even harder at publicizing throughout in Asia Pacific Rim region, and update their selves continuously to coincide with current trends of the industry.

## What's New in 2011!!!

### TCTAP Highlights

This year's ANGIOPLASTY SUMMIT-TCTAP will provide the very latest, interesting information and technology throughout various practical sessions designed to improve participants' knowledge, skills and experience in interventional cardiology and endovascular medicine. The following topics will be covered during this course: the 5<sup>th</sup> Left Main and Bifurcation Summit, IVUS and FFR, and Transcatheter Valve Therapies.

The Left Main and Bifurcation Summit has been organized by CVRF, Korea and CRF, US together since 2007, and this year two international societies, APSIC and CIT, joined in organizing this session.

Starting from 2:00pm in the Tutorial Arena, the Imaging Workshop delivers specialized messages about both invasive and non-invasive imaging from the world's leading experts in Imaging and Physiology. The first part of this session will be held on Thursday April 28<sup>th</sup>, and its lectures on IVUS, FFR, Vulnerable Plaque and OCT will be a great resource for interventional cardiologists. The second part will be composed of non-invasive imaging for interventional cardiologists. Below are the other program highlights which make TCTAP2011 especially useful for people in the field of cardiology.

#### TCTAP Highlights 1:

**Meet the Experts over Breakfast**  
7:00 AM to 8:10 AM, Wednesday April 27<sup>th</sup> through Friday April 29<sup>th</sup>

Out of all the sessions in the Summit, this one is extremely popular and well attended every year. Interesting cases on various

## CardioVascular Research Foundation (CVRF)

The CardioVascular Research Foundation (CVRF) is a nonprofit clinical research foundation that contributes to improving the lives of patients with cardiovascular disease by promoting preclinical and clinical researches, educating physicians and teaching patients.

\* Please visit CVRF booth at #D1 on the bridge toward Exhibit Hall 2 for our special events during TCTAP2011

## Meeting Information

### Registration & Congress Kit Pick-up B3, W Seoul-Walkerhill

- April 26 (Tue.), 1:00 pm-6:00 pm
- April 27 (Wed.)-28 (Thu.), 7:00 am-6:00 pm
- April 29 (Fri.), 7:00 am-4:30 pm

### Preview Room for Presenters

Studio Room, 2F

- April 26 (Tue.), 2:00 pm-5:00 pm
- April 27 (Wed.)-28 (Thu.), 6:30 am-6:00 pm
- April 29 (Fri.), 6:30 am-5:00 pm

### Industry Satellite Symposium

Breakfast Meeting

- April 27 (Wed.)-29 (Fri.), 7:00 am-8:10 am

Lunchtime Activities

- April 27 (Wed.)-28 (Thu.), 12:45 pm-1:45 pm

Evening Symposia

- April 26 (Tue.)-28 (Thu.), 6:00 pm-8:30 pm

### Exhibition & Learning Center

Exhibit Guidebook

- Exhibit Hall 1: Main Arena Lobby (B2, W Seoul-Walkerhill)  
: Industry & Educational Booth
- Exhibit Hall 2: Grand Hall (B1, W Seoul-Walkerhill)  
: Industry Booth, Learning Center and Lounge

### CVRF Secretariat booth (B1, W Seoul- Walkerhill)

CVRF

CVRF (CardioVascular Research Foundation)

- Annual Conference and Educational Activities
- ACT Program & Tour
- CVRF Fund
- Outstanding Research Awards for Abstracts & Cases
- Lost and Found
- Certificate of Attendance will be available

### Real-time Online Activities at [www.summitMD.com](http://www.summitMD.com)

Cyber Station

- Live Interview of Key Opinion Leaders
- Live Case Demonstration Review
- Factoid & Syllabus

from page 1

subjects, including bifurcation intervention, FFR, DES technologies and left main intervention are presented and addressed in detail by expert panel members from around the world within an interactive environment. One of the main advantages of this session is a lively open communication on each topic between the experts and attendees, which will enable them to get every morning fresh perspectives and greater understanding of the most challenging issues relating cardiovascular and endovascular intervention.

### TCTAP Highlights 2: Technology & Innovation 6:00 PM to 9:00 PM, Tuesday April 26<sup>th</sup>

The session starts with an introduction followed by a number of interesting presentations about technology and innovation under the topic "How to Innovate in Cardiovascular Technology." There are different fundamental analyses in terms of cardiovascular technology, and the audience will experience two different approaches to this issue. One will inform about "How to Teach and Train Innovation: the US Approach", while the other will expound "Innovation in Medicine: the Korean Approach".

After this, the session will provide interactive analyses of global products for the next two hours, with divergent point of views from clinical trial investigators and industry professionals that allow the audience to experience worldwide view of the products. Not only globally recognized companies, including Abbott, Boston Scientific, and

Medtronic, will be represented by highly qualified professionals, but new rising brands, like Lepu Medical and Merillife Science will present their research and clinical trials as well.

### TCTAP Highlights 3: Fellows Course 2:00 PM to 5:00 PM, Tuesday April 26<sup>th</sup>

It is really exciting to see and listen to knowledge and technical know-how presented by the most experienced cardiologists. In particular the step by step learning points, which cover the two main interesting learning subjects: Left Main, Bifurcation and Chronic Total Occlusion Intervention. During three hours, the world's most qualified leaders in these fields will share their own experiences and provide many tips and tricks by presenting lectures and addressing questions from the audience. This session is specially designed for fellows and young cardiologists just starting their career, and all the presentations seek to give the attendant an understanding of the techniques performed on a daily basis.

### TCTAP Highlights 4: The Most Distinguished Studies of 2010-2011 in Interventional and Clinical Cardiology: Meet the Authors and Discuss with the Experts 8:30 AM – 12:30 PM, Thursday April 28<sup>th</sup>

The best publications of 2010-2011 are presented during this opening session on the second day of TCTAP2011. Don't miss

this exclusively special opportunity to meet the most influential and significant publications in interventional cardiology and talk with the authors. This session consists of four main topics presenting on Anti-Platelets and Anti-Coagulants in ACS, ACS Treatment, STEMI Management, and Revascularization Strategy for CAD to give the audience a summary of worldwide experience. This puts them in contact with the best innovations and the latest developments in the field.

## New for 2011

### 1. Poster zone

More than 200 abstracts will be displayed in the new poster zone and numbered according to title, level B3 on Wednesday 27<sup>th</sup> from 2 PM to 6 PM and Thursday 28<sup>th</sup> from 2 PM to 6 PM.

### 2. TCTAP2011 Mobile Application

Enjoy TCTAP2011 in the palm of your hand with the free easy-to-use TCTAP mobile app. You can get the complete program agendas, faculty, venue map, exhibitors list and much more on your smart phone and tablet PC.

### 3. Master of the Masters

The 1<sup>st</sup> TCTAP award, Master of the Masters will be presented during Late Breaking Clinical Trials session on April 28th in the Main Arena. Don't miss the ceremony to check who will be chosen the first Master of the Masters!!

## Live Case Transmission Sites

Live Case Demonstration is a core of the Angioplasty Summit-TCTAP 2011, featuring the different strategies and techniques by world first-class operators in the same type of lesions simultaneously.



### Korean Sites



#### Asan Medical Center, Seoul

- Main Arena, April 27 (Wed.), 2:00pm-3:00pm/4:30pm-5:30pm  
April 28 (Thur.), 8:30am-9:30am/11:00am-12:00pm/4:30pm-5:30pm
- Endovascular Arena, April 27 (Wed.), 3:00pm-4:00pm/5:00pm-6:00pm  
April 28 (Thur.), 9:30am-10:30am/11:30am-12:30pm/3:30pm-4:30pm

### International Sites



#### Columbia University Medical Center, New York, USA

- Main Arena, April 27 (Wed.), 8:40am-9:40am



#### Institut Hospitalier Jacques Cartier, Massy, France

- Main Arena, April 28 (Thur.), 4:00 pm-4:30pm
- Coronary Arena, April 28 (Thur.), 5:00 pm-6:00pm



#### Toyohashi Heart Center, Toyohashi, Japan

- Main Arena, April 27 (Wed.), 3:00pm-3:30pm
- Coronary Arena, April 27 (Wed.), 4:00pm-5:00pm



#### SoonChunHyang University Hospital Bucheon, GyeongGi Province

- Main Arena, April 27 (Wed.), 4:00am-4:30am
- Coronary Arena, April 27 (Wed.), 5:00am-6:00pm



#### Wonju Christian Hospital, Gangwon Province

- Main Arena, April 28 (Thur.), 10:00pm-11:00pm
- Coronary Arena, April 28 (Thur.), 11:30pm-12:30pm

# Paradigm Shift to Functional Angioplasty

## New Insights for FFR and IVUS guided PCI



Dr. Park will present the new insight for FFR and IVUS guided PCI. In real world practice, fewer than half of all

patients are non-invasively evaluated for myocardial ischemia prior to revascularization therapy. Thus, coronary angiograms are still frequently utilized as a cornerstone of decision making, despite the substantial discrepancy between the angiographic and functional severity of stenosis. Adjuvant technologies such as fractional flow reserve (FFR) and intravascular ultrasound (IVUS) are therefore considered in daily practice to overcome the limitations of coronary angiography for diagnostic and interventional procedures. Today, he will propose the concept of functional angioplasty, simultaneous utilization of FFR and IVUS in daily practice in contemporary catheterization laboratories.

### Fractional Flow Reserve

FFR is defined as the ratio of maximal hyperemic myocardial blood flow through a stenotic artery to the theoretical maximal hyperemic myocardial blood flow in the absence of stenosis. Several clinical studies have shown the superiority of this index, particularly in selecting lesions appropriate for revascularization. Furthermore, these results have been incorporated into the ACC/AHA/SCAI focused updates to treatment guidelines for patients with coronary artery disease, raising the level of evidence for the use of FFR to “A” and expanding recommendations, stating that FFR “can be useful to determine whether PCI of a specific coronary lesion is warranted”.

### Visual-Functional Mismatch

A recently published sub-analysis of the FAME study thoroughly evaluated the “visual-functional mismatch” of coronary artery disease (Figure 1). Of the patients with 3 vessel disease, as assessed by visual estimation, only 14% had 3 vessel disease after FFR measurement, whereas

9% had no functionally significant stenoses. Of the 1,329 target lesions (> 50% stenosis by visual estimation), only 816 (61%) had FFR ≤ 0.80. Furthermore, among lesions with stenoses of 50% to 70%, 71% to 90%, and 91% to 99%, only 65%, 20%, and 4%, respectively, were found to have FFR > 0.80. Of 509 patients with angiographically defined multi-vessel disease, only 235 (46%) had functional multi-vessel disease (≥ 2 coronary arteries with an FFR ≤ 0.80). These findings indicated that, in the absence of FFR, about 40% of procedures would have been performed in functionally insignificant stenotic lesions. Furthermore, a considerable proportion of patients who could have been treated by PCI underwent bypass surgery. He calls this phenomenon as “visual functional mismatch” and comments that simple visual assessment of coronary angiogram cannot predict the functional significance of coronary stenosis. Therefore, lesions with intermediate angiographic stenosis should be evaluated by FFR during coronary angiography or

PCI, particularly in the absence of non-invasive functional test. In addition, Dr. Park also insists that interventional cardiologists should overcome the personal visual bias that produces suboptimal outcome option and employ the best treatment outcome option.

### Can IVUS replace the role of Functional Study during PCI? No!!

Although IVUS cannot directly estimate the functional significance of coronary stenosis, attempts have been made to determine the IVUS parameters that correspond to functionally significant coronary artery narrowing, thus integrating target lesion anatomy and physiology. Thus, over the last 10 years, some interventionists

have inserted stents into every lesion with MLA < 4 mm<sup>2</sup> on IVUS. However, some a r g u m e n t against this approach has been recently raised as FFR was increasingly utilized in daily practice. Problems have c e n t e r e d around two questions: what

IVUS MLA truly corresponds to the ischemic threshold, and can IVUS predict the functional significance of coronary stenosis? Dr. Kang and Dr. Park (Asan Medical Center) recently addressed these issues in 201 patients with 236 coronary lesions who underwent pre-interventional IVUS and FFR measurements to determine

the best IVUS MLA criteria corresponding to FFR < 0.80. Using ROC analysis, they provided new IVUS MLA criteria, showing that the best cut-off value of IVUS MLA for predicting FFR < 0.80 was 2.4 mm<sup>2</sup>. Furthermore, a scatter plot (Figure 2) showed that the FFR values of lesions with MLA < 4 mm<sup>2</sup> were widely scattered, and 66% of analyzed lesions have MLA < 4 mm<sup>2</sup> but FFR > 0.80. Using our new, stricter criteria of MLA, < 2.4 mm<sup>2</sup>, 30% of analyzed lesions had MLA < 2.4 mm<sup>2</sup> but FFR > 0.80. Thus, use of our new IVUS MLA criteria could result in a 36% reduction in unnecessary procedures.

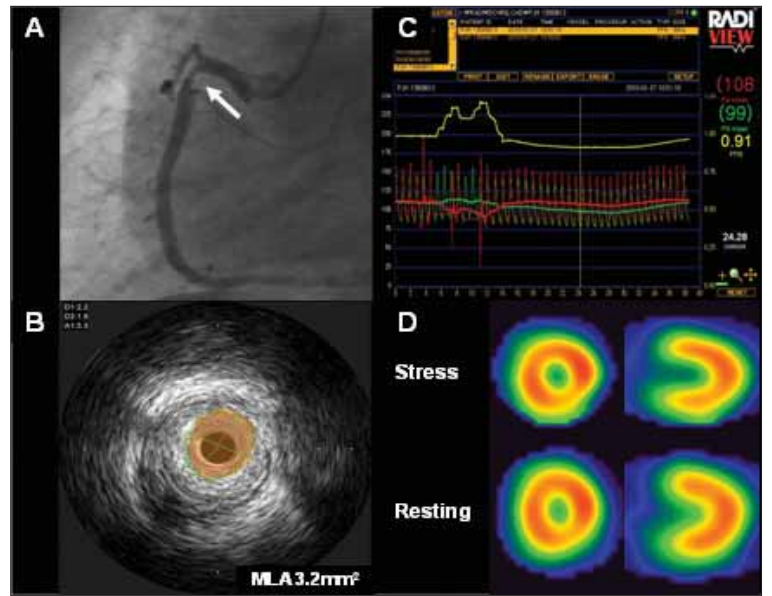


Figure 1

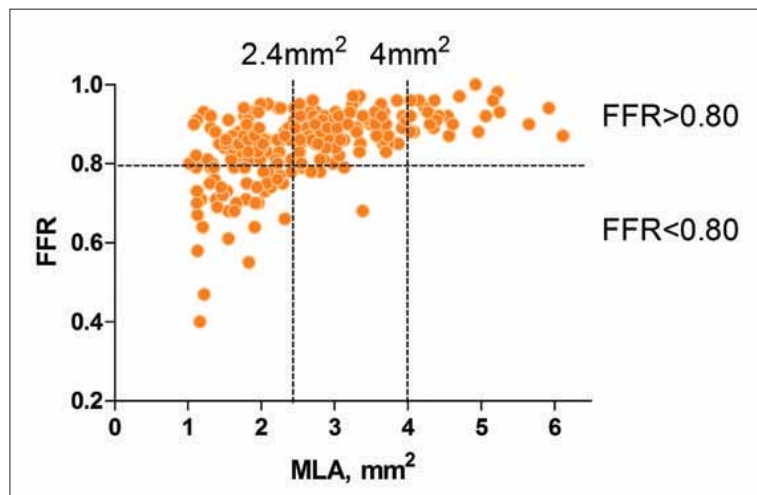


Figure 2

Nevertheless, regardless of cutoff values, use of IVUS MLA criteria alone could not predict the result of FFR measurement and still lead to the performance of unnecessary procedures in a considerable proportion of patients. Therefore, Dr. Park says that operator should be aware of this disconnection between visual by IVUS and functional relationship.

### Functional Angioplasty

He says that the issue of superiority between FFR guidance and IVUS guidance might be irrelevant because these are complementary and not competitive. FFR measurements, based on the objective determination of ischemia, can assist individual interventional cardiologists in making decisions about revascularization in patients with coronary artery disease, thereby helping to balance the risks and benefits of PCI in various clinical situations. Much clinical evidence indicates that use of this dedicated invasive functional method may help in selecting appropriate patients and lesions for treatment, avoiding unnecessary procedures, reducing medical costs, and improving each patient’s clinical outcomes. In the meanwhile, IVUS can be used to secure the PCI procedure by pre-intervention lesion assessment and post-intervention stent optimization. He concludes “the simultaneous utilization of these two complementary modalities - functional angioplasty - may result in the optimization of PCI results, and may indicate the future direction of interventional cardiology”.



# Driving Innovation Delivering Solutions

Discovering new and better ways to advance vascular care is the heartbeat of our work. Our focus is on breakthrough scientific research that drives innovation from products to medical education.

Our mission is to deliver solutions that make a difference in the treatment and care of people all over the world.



Visit our booths **A2** at Angioplasty Summit TCT Asia Pacific 2011 to discover how innovations deliver solutions

Today - Wednesday 27<sup>th</sup> April

## DES Symposium

12:45-13:45 - Coronary Arena, Level 1

### • **Safety, First**

*Organized by CVRF and Supported by Educational Grant from Abbott Vascular*

*Moderators: Seung Jung Park, MD, Gregg W. Stone, MD*

- *Xience platform safety update* - Gregg W. Stone, MD (Columbia University Medical Center, Cardiovascular Research Center, USA)
- *Meta Analysis Result of Everolimus Eluting Stent vs Sirolimus Eluting Stent* - Hyo Soo Kim, MD (Seoul National University Hospital, Korea)
- *K Xience registry results* - Young Hak Kim, MD (Asan Medical Center, Korea)

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# Hopes for Patients Who Cannot Undergo AVR: TAVI

Main Arena, Vista Hall, Level B2, 9:40 AM - 10:30 AM, Coronary Arena, Mugunghwa Hall 1, Level 1, 2:00 PM -3:00 PM

In the 16th Angioplasty Summit 2011-TCTAP has the program about the latest technical and clinical investment about transcatheter aortic valve implantation (TAVI). On Wednesday morning, at 9:40 AM in the Main Arena, “The TAVI Revolution” will be held. In addition, at 2:00 PM, Wednesday, in the Coronary Arena, there will be a “Transcatheter Valve Therapy” session covering from the patient selection to the cost-effectiveness of the TAVI.

Until now, surgical aortic valve replacement (AVR) is currently the only treatment option for severe aortic stenosis that has been shown to improve survival. Unfortunately, up to one third of patients with severe aortic stenosis are ineligible for AVR, either because of advanced age or the presence of multiple comorbidities. Recently, TAVI is becoming another option for the patients who are not operative candidates. Since the first successful human case of TAVI in 2002 by Cribier et al., the combination of technology enhancements, revised patient selection, and improved operator techniques have resulted in reduced procedural complications and improved clinical outcomes.

## Current Valves in TAVI

There are currently two valves in clinical use. One is the Edwards transcatheter heart valve (Edwards Lifesciences, Irvine, CA) which utilizes a balloon-expandable tubular frame and the other is self-expandable CoreValve (CoreValve, Irvine,

	Edwards SAPIEN XT	CoreValve
Frame	Cobalt chromium Nitinol	Cobalt chromium Nitinol
Leaflets	Bovine pericardial	Porcine pericardial
Retrievable	No	Prior to release
Ascending aortastabilization	No	Yes
Manufacturers diameter	23, 26mm	26, 28mm
Recommended annulus diameter	18-25mm	20-27mm
Length	15-17mm	53-55mm
Delivery system diameter	18Fr & 19Fr	18Fr
Sheath external diameter	7.3mm	7.3mm
Longest reported follow-up	5yrs	3yrs
Randomized trials	PARTNER trial	On going

Figure 1. Comparison of the two valves in currently use for TAVI

CA; Figure 1). Early versions of the both devices required large 22~25Fr delivery systems. However, in these days both valves are available with comparable low

profile 18~19Fr delivery systems in virtue of the advanced technology. The Edwards SAPIEN transcatheter heart valve consists of bovine pericardium that is firmly mounted within a tubular, slotted, stainless steel stent. Two valve sizes have been developed (23 mm and 26 mm). A 26 mm valve is typically used for an aortic annulus diameter of up to 25 mm; a 23 mm valve is typically used for an aortic annulus diameter of up to 21 mm. The CoreValve consists of a porcine pericardial tissue valve that is mounted and sutured in a multilevel self expanding nitinol frame. Because CoreValve has stent frame extending into the ascending aorta, less haemodynamic instability during deployment and is potentially retrievable if positioned improper location. The third generation of the device features a catheter with a valve delivery sheath size of 18Fr and a follow-on shaft of 12Fr.

## Candidate Selection

Evaluation of the potential TAVI candidate is a complex process involving multidisciplinary review. The basics are similar to what is standard in the setting of surgical

## Requirements for Successful TAVI

Relatively large delivery catheters may result in significant problems such as arterial dissection, perforation, or thrombosis if using the retrograde access from the femoral artery. Originally requiring open cutdown, arterial access this is now typically accomplished with percutaneous puncture and percutaneous suture closure. Alternatives include open surgical access to the retroperitoneal iliac artery, subclavian artery, ascending aorta, or left ventricular apex. Regardless of access route an optimal facility should be able to provide excellent fluoroscopic imaging, surgical sterility, and ready access to anaesthetic, echocardiographic, vascular, and cardiac surgical support.

There are specific risks to be considered and technical tips for improve outcomes of TAVI. It is well known that the vascular events have represented the most common complication associated with TAVI. Therefore, angiography and/ or CT angiography should be evaluated before TAVI, because minimal lumen diameter as well as the amount and distribution of atheroma, tortuosity, and calcification will determine the risk for vascular injury related to sheath insertion. Recently, CoreValve 18Fr studies have reported vascular complication rates of 2~17%.

The incidence of stroke varies in the published reports as the consequence of the learning curve, the evolution in technique, and equipment but also the completeness of neurologic assessment.

With current devices and experience, stroke rate ranges from 0% to 10%. The most frequent etiology of procedural stroke is likely to be atheroembolism from the ascending aorta or the aortic arch. Other potential causes include calcific embolism from the aortic valve, thromboembolism from catheters, air embolism from LV cannulation, prolonged hypotension, and dissection of arch vessels. In the future, increased procedural experience, less traumatic

valve delivery systems, screening for thick aortic atheroma, and possibly embolic protection devices currently under development might lower the risk of stroke.

Valve positioning and selecting size of the valve requires careful attention as improper positioning or smaller valve may obstruct coronary flow at the coronary ostia or paravalvular leak or embolization. However, coronary obstruction may rarely occur as a consequence of THV displacement of the native valve leaflet over the left main ostium. Risk factors for left main occlusion include a low origin of the coronary ostium, a shallow sinus of Valsalva, a bulky native valve and design characteristics of the prosthesis. Currently, no definite criteria exist to exclude patients on the basis of the risk for coronary obstruction, but some have suggested that the coronary ostia should be minimally located 14 mm away from the leaflets insertion. The ability to recapture and reposition a valve after deployment would clearly be advantageous, and such prostheses might become available in the upcoming years.

TAVI may give an Injury to the atrioventricular conduction system as it courses through the interventricular septum below the aortic valve. In general, atrioventricular block is a known complication of surgical AVR with reported incidence up to 8.2%. Until now, the rate of new pacemaker implantation with the CoreValve device (9-36%) is clearly higher than the rate reported with the Edwards device (3-12%). The next generation THVs (transcatheter valves) are designed to reduce delivery catheter diameter, facilitate accurate positioning, reduce paravalvular leaks, and allow retrieval for precise positioning. Dr. Patrick W. Serruys will introduce the “complications after TAVI: VARC Definitions, Frequency, and Management

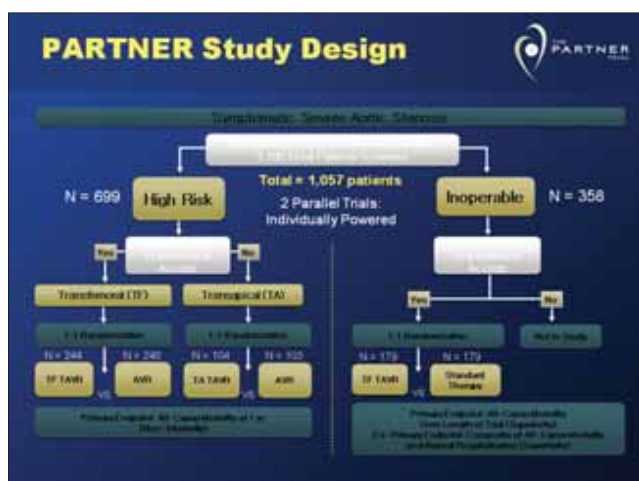


Figure 2

AVR. The standard evaluation for TAVI includes transthoracic and/ or transesophageal echocardiography to confirm severity of the aortic stenosis, assess other valvular lesions, left ventricular function and, especially, the size of the aortic annulus. Coronary angiography must be performed to assess the need for revascularization. Angiography and/or CT angiography is needed to assess the presence and severity of ilio-femoral disease and determine the feasibility of an arterial approach. Dr. Samir Kapadia will introduce “Which Patients Are Suitable for TAVI” at 2:00 PM in the Coronary Arena.

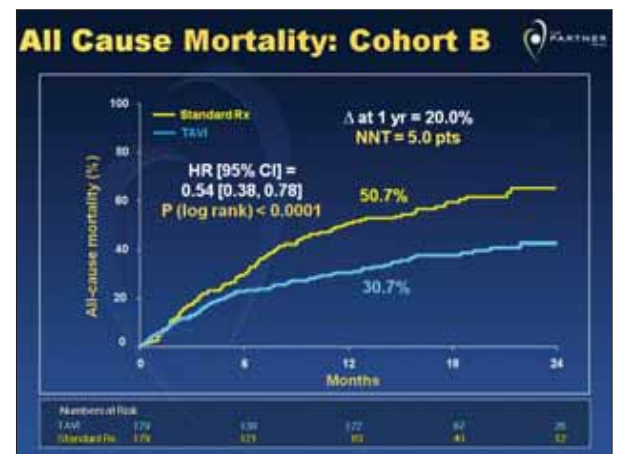


Figure 3

from page 5

Considerations” from 10:07 AM in the Main Arena. From 2:12 PM at the Coronary Arena, Dr. Eberhard Grube will give us valuable comments about “Tips and Tricks for Good TAVI” and also Dr. Augusto D. Pichard will present “Evolving Technologies to Improve Outcomes of TAVI.”

**PARTNER trial**

The Placement of Aortic Transcatheter Valves (PARTNER) trial was a multicenter, randomized clinical trial comparing TAVI with standard therapy in high-risk patients with severe aortic stenosis, including a prespecified cohort of patients who were not considered to be suitable candidates for surgery (Figure 2). In October, 2010 Leon et al. reported at NEJM about the

outcomes with TAVI as compared with standard therapy among the patients in the PARTNER trial who were not suitable candidates for surgery. The randomized trial involving patients at high surgical risk who were nevertheless considered to be candidates for surgery is ongoing. In terms of the PARTNER trial, Dr. Samir Kapadia will present us about “life after PARTNER: Will TAVI Therapy Change Guidelines for AS Patients?” at 9:40 AM in the Main Arena. From 2:36 PM in the Coronary Arena Dr. Martin B Leon will introduce about “Perspectives from PARTNER Trial” and after that Dr. David J. Cohen will close the session with the “Cost-effectiveness of TAVI for Patients with Inoperable Aortic Stenosis: Results from the PARTNER Trial (Figure 3, 4).”

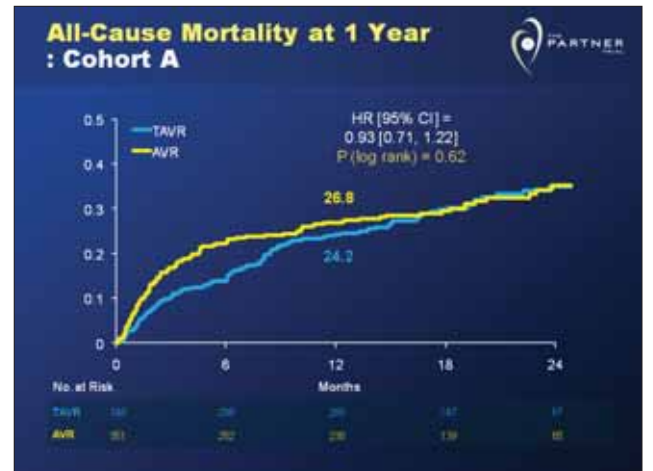


Figure 4

ANGIOPLASTY SUMMIT **TCTAP2011**  
TRANSCATHETER CARDIOVASCULAR THERAPEUTICS ASIA PACIFIC

Left Main and Bifurcation Summit | IVUS and FFR | Transcatheter Valve Therapies

# TAVI Simulator Workshop

In collaboration with Edwards Lifesciences

April 27-28, 9:00-17:00, Edwards Simulation Booth @Grand Hall Entrance Lounge

Only available for pre-registered participants  
However, on-site registration may be possible if the seats are available. Please check with Edwards staff at Edwards Simulation Booth.

## From a DES to a BMS - Biodegradable Polymer Technology: Designed to Improve Long Term Patient Outcomes!

**Date: 28 April 2011 (Thursday)**  
**Time: 12:45-13:45**  
**Venue: Presidio Room #2-1 (Level 2)**

**Chairperson:** Myung Ho Jeong, MD - Chonnam National University Hospital, Korea  
Eberhard Grube, MD - University Hospital Bonn, Germany

**12:45 • Opening**  
Myung Ho Jeong, MD - Chonnam National University Hospital, Korea

**12:50 • Evidence Based Medicine: Does BioMatrix™ Bring Patient Benefit? 3 yr/subgroup Follow Up from LEADERS Trial**  
Eberhard Grube, MD - University Hospital Bonn, Germany

**13:05 • Evaluation of Effectiveness and Safety of BioMatrix™ - Biolimus A9™ stEnt in patients with AcUTE coronary sYndrome**  
Young Joon Hong, MD - Chonnam National University Hospital, Korea

**13:15 • BioMatrix™ : The Next Generation Biodegradable Polymer Technology - Korean Experience**  
Kyung Woo Park, MD - Seoul National University Hospital, Korea

**13:25 • A Single Center Clinical Experience Using Biolimus A9™ - Eluting Stent with Biodegradable Polymer**  
Il Rhee, MD - Dong-Eui Medical Center, Korea

**13:35 • Panel Discussion**  
Panelists

**13:45 • Closing**  
Eberhard Grube, MD - University Hospital Bonn, Germany

**Panelists:**

- Jang Ho Bae, MD - Konyang University Hospital, Korea
- Seung Ho Hur, MD - Keimyung University Dongsan Medical Center, Korea
- Kiyuk Chang, MD - The Catholic University of Korea, Seoul St. Mary's Hospital, Korea
- Seung Hwan Lee, MD - Wonju Christian Hospital, Korea
- Cheol Woong Yu, MD - Sejong General Hospital, Korea
- Ng Kok Huan, MD - Hospital Tengku Ampuan Afzan, Malaysia
- Rogelio Ventura Tangco, MD - Manila Doctors Hospital & Philippine General Hospital, Philippines

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# DES Dilemmas (Updated DES Studies)

TCT Asia Pacific Session, Main Arena, 10:30 AM - 11:15 AM

Drug eluting stents (DES) have changed the landscape of interventional cardiology with their high efficacy in preventing restenosis. Several DES are available for routine clinical use with different drugs, polymers and platforms.

First-generation DES has shown the angiographic and clinical efficacies through many clinical trials involving over 14,000 patients. Sirolimus-eluting stents (SES) and paclitaxel-eluting stents (PES) are effective at decreasing rates of angiographic restenosis and major adverse cardiac events compared with bare-metal stents. However, there is no evidence that they affect mortality or myocardial infarction rates. Furthermore, they have critical and conceptual flaws, which are incomplete and delayed endothelialization and late incomplete apposition.

Second-generation DES, which delivers zotarolimus or everolimus, via a biocompatible polymer on metal alloy thin-strut stent has shown promising experimental and early clinical benefits. The ENDEAVOR, zotarolimus-eluting stent (ZES, Medtronic) was designed on a cobalt-nickel stent platform with thinner struts (91 µm) as compared to the first generation DES. ENDEAVOR IV trial of 1,548 patients with single de novo coronary lesions demonstrated that ZES was noninferior to PES with rates of the primary composite end point, target vessel failure (TVF), at 9 months (6.6% vs. 7.1%; p=0.001 for non-inferiority). The angiographic data at 9 month follow-up showed that in-stent late loss, in-segment late loss, and in-segment binary restenosis respectively were higher in the ZES as compared to the PES. Three year outcomes indicated that TVF rate showed a strong but statistically insignificant trend favoring ZES (12.4% vs. 16.1; p=0.052). Rates of death and myocardial infarction were significantly lower with ZES, which were driven by less stent thrombosis in ZES SORT-OUT III trial was conducted for the all-comer 2,332 patients with stable angina or acute coronary syndrome. ZES was statistically inferior to the SES with rate of primary composite end point defined as cardiac death, myocardial infarction, and target vessel revascularization (TVR) at 18 months (9.7% vs. 4.5%; p < 0.0001). ZES was also found to be statistically inferior to SES in the each clinical end point including

myocardial infarction (2.1% vs. 0.9%; p=0.029), all-cause mortality (4.4% vs. 2.7%; p=0.035), TVR (7.9% vs. 3.3%; p < 0.0001) and target lesion revascularization (6.1% vs. 1.7%; p < 0.0001) (Figure 1).

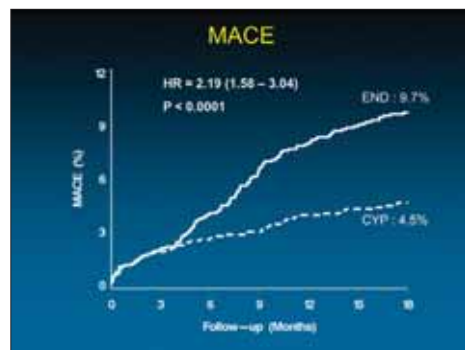


Figure 1

At 8 months, there was a statistically significant difference existed for stent thrombosis in favor of the SES (0.3% vs. 1.1%); at 18 months, there was no longer any statistically significant difference (0.5% vs. 1.1%; p=0.13). ZEST trial was conducted for 2,645 all-comer patients to evaluate the efficacy and safety of ZES in comparison with SES and PES. ZES group showed noninferior rates of primary end point, major adverse cardiac events (MACE) defined as death, myocardial infarction, and TVR, compared to SES group (10.2% vs. 8.3%, p=0.01 for noninferiority) and significantly fewer MACE than PES group (10.2% vs. 14.1%; p=0.01 for superiority). These trial results demonstrate that SES may have better efficacy than PES and ZES, while there is no significant difference between first-generation DES and ZES with regard to safety (Figure 2).



Figure 2

XIENCE-V, everolimus-eluting stent (EES, Abbott Vascular) was built on a cobalt-chromium based alloy with much thinner struts (91 µm). A thin stent strut is incorporated in neointima more rapidly, and will require less neointima to completely cover the struts. More rapid endothelialization was noted with EES as compared to SES, PES and ZES in preclinical rabbit models. SPIRIT IV, one of the largest DES

trials enrolling 3,687 patients, showed enhanced efficacy and safety of EES in the treatment of de novo native coronary artery lesions as compared to PES. Unlike prior SPIRIT trials, SPIRIT IV trial was powered for superiority for clinical endpoints without angiographic follow-up. EES significantly reduced target lesion failure (TLF), the study's primary end point, at 1 year as compared to PES (4.2% vs. 6.8%; p=0.0009 for superiority). In addition, the rate of myocardial infarction was lower with EES compared to PES (1.9% vs. 3.1%; p=0.02). Definite or probable stent thrombosis rate was also significantly reduced with EES as compared to PES (0.3% vs. 1.1%). SPIRIT IV trial continued to demonstrate outstanding clinical results of EES versus PES in efficacy and safety and efficacy through 2 years. EES demonstrated a clinically significant 30% risk reduction in TLF compared to PES (6.9% vs. 9.9%; p=0.003). In addition, EES demonstrated a 64% risk reduction of definite or probable stent thrombosis through 2 years (0.42% vs. 1.23%; p=0.008). The result of SPIRIT IV in a selected patient population were extended by the COMPARE trial, a randomized comparison of EES and TAXUS Liberté PES (Boston Scientific), which included an unrestricted "real world" population of 1,800 patients. One year follow up results showed that EES was superior to TAXUS Liberté PES in the primary composite end point defined as all death, myocardial infarction and TVR (6.2% vs. 9.1%). Definite or probable stent thrombosis rate was also significantly reduced with EES as compared to PES (0.7% vs. 2.6%; p=0.002). Two year follow-up of COMPARE trial showed even a wider difference between EES and PES. The primary end point occurred in 13.7% of the patients who received PES compared to 9.0% of the patients who were implanted with EES (p=0.0016) (Figure 3). Definite or probable stent thrombosis occurred in

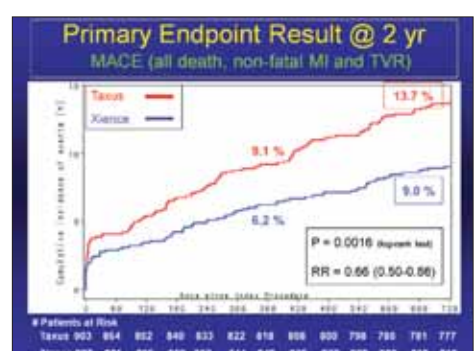


Figure 3

3.9% of the patients receiving PES compared to 0.9% of the patients who received EES (p < 0.0001). SORT-OUT IV trial was another study to compare EES and SES including 6,726 patients. EES was noninferior to the SES in terms of rate of MACE defined as composite of cardiac death, myocardial infarction, definite stent thrombosis and clinically driven TVR at 9 months (4.9% vs. 5.2%; p=0.01 for noninferiority).

DES with biodegradable polymers may be emerging breakthroughs in that hypersensitivity to the polymer is one of the important causes of late developing stent thrombosis and coronary artery aneurysm. After drug delivery and subsequent complete polymer bioabsorption, only the biologically inert bare-metal platform remains. LEADERS trial compared BIOMATRIX, biolimus, a sirolimus analogue, eluting stent (BES, Biosensors) with biodegradable polymer and SES with durable polymer in 1,707 all-comer patients. BES was non-inferior to SES in the primary end point, a composite of cardiac death, myocardial infarction, or clinically-indicated TVR (9.2% vs. 10.5%; p=0.003 for noninferiority) at 9 months. Three year data from LEADERS trial demonstrated that noninferiority of BES versus SES was sustained. The cumulative percentage of the primary end point up to 36 months were 15.7% for BES and 19.0% for SES (p=0.09 for superiority), including definite stent thrombosis 2.2% versus 2.9% (p=0.43 for superiority). NOBORI, another BES with biodegradable polymer (Terumo) was also found to be superior to PES and noninferior to SES in terms of angiographic and clinical outcomes.

Bioabsorbable stent are another exciting class of future generation devices. It may become possible to tailor the lifetime of the implant to the clinical need of the disease or condition. It will offer the benefits of DES without leaving a metallic stent behind after the therapy of a coronary vessel lesion. The use of four fully bioabsorbable stent platform is currently under investigation in humans. ABSORB trial evaluated bioabsorbable EES (BVS, Abbott Vascular) in 30 patients. Sustained clinical efficacy of BVS was shown by the low MACE rate (3.6%) and the absence of TLR at 2 years. Recently, the second generation of BVS showed improved results on OCT imaging

Continued on page 11



# MEET THE EXPERTS OVER BREAKFAST

Current Issues in the Cardiovascular & Endovascular Interventional Field:  
Focus Reviews and Case Presentation with Discussion in a Small Group Environment

April 27 (Wed.) - 29 (Fri.), 2011 | 7:00 a.m. - 8:10 a.m.

## Wednesday, April 27

### **Bifurcation Intervention: "Optimizing Stenting Technique"**

*Organized by CVRF and Supported by Educational Grant from Boston Scientific Korea*  
Coronary Arena, Level 1

### **Revascularization Strategies in Diabetic Patients: "Diabetic Paradox: Is It Real?"**

*Organized by CVRF and Supported by Educational Grant from Abbott Vascular*  
Endovascular Arena, Level 1

### **Percutaneous Valve Therapy: "Current and More"**

*Organized by CVRF and Supported by Educational Grant from Edwards Lifesciences Korea Co., Ltd.*  
Room 1-1, Level 1

### **Door to Device - Optimizing Outcomes with Mechanical Support in Cardiogenic Shock**

*Organized by CVRF and Supported by Educational Grant from Maquet Medical Korea*  
Room 2-1, Level 2

### **STEMI Now: Same Story, Different Tales**

*Organized by CVRF*  
Room 3-1, Level 3

### **Evolving Antiplatelet Therapy: "New Pharmacologic Options for ACS and PCI Patients"**

*Organized by CVRF*  
Tutorial Arena, Level 4

## Thursday, April 28

### **Left Main Stenting: "Evidence vs. Out of Evidence"**

*Organized by CVRF and Supported by Educational Grant from Abbott Vascular*  
Coronary Arena, Level 1

### **Challenging the Complexity of CAD in Asia Pacific**

*Organized by CVRF and Supported by Educational Grant from Medtronic Co, Ltd.*  
Endovascular Arena, Level 1

### **Pharmacogenomics and Platelet Reactivity Test**

*Organized by CVRF and Supported by Educational Grant from Daiichi-Sankyo Korea & Lilly Korea*  
Room 1-1, Level 1

### **Innovations in 2011: Now and the Future**

*Organized by CVRF*  
Room 2-1, Level 2

### **How to Treat: Complex Lesion**

*Organized by CVRF and Supported by Educational Grant from Terumo Korea Corporation*  
Room 3-1, Level 3

### **Vulnerable Plaque: The Challenges Ahead**

*Organized by CVRF and Supported by Educational Grant from Volcano(BT+)*  
Tutorial Arena, Level 4

### **New DES Technologies**

*Organized by CVRF*  
Room 4-1, Level 4

### **Drug-coated Stent or Balloon for PVD: "New Horizon for PVD"**

*Organized by CVRF*  
Room 4-2, Level 4

## Friday, April 29

### **Paradigm Shift to "Functional Angioplasty"**

*Organized by CVRF and Supported by Educational Grant from St. Jude Medical*  
Coronary Arena, Level 1

### **Carotid Stenting: "Best Licence for Carotid Revascularization"**

*Organized by CVRF and Supported by Educational Grant from Abbott Vascular*  
Endovascular Arena, Level 1

### **Revascularization for Multivessel Coronary Disease: "Complete Revascularization: The Link Between Anatomy and Function"**

*Organized by CVRF*  
Room 1-1, Level 1

### **OCT: "The 2nd Generation OCT Is Useful to Assess Complex Coronary Lesions"**

*Organized by CVRF and Supported by Educational Grant from St. Jude Medical*  
Room 2-1, Level 2

### **Techniques for CTO Intervention: "Best Selection and Right Direction"**

*Organized by CVRF*  
Room 3-1, Level 3

### **Role of Noninvasive CT Imaging in Daily Practice: A Case-Based Approach**

*Organized by CVRF*  
Tutorial Arena, Level 4



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from page 8

compared to previous BVS, with less late shrinkage and neointimal growth at 6 months.

Important consideration points for future DES include more clinically applicable device, broader safety margins, and

greater facility at promoting endothelialization and healing. In other word, future DES have to prove efficacy and safety in

both long-term follow up as well as complex lesion subsets.

# The New Anti-platelet Agents and Platelet Reactivity Testing: Recommendations for Prasugrel and Ticagrelor and Lessons from GRAVITAS

Coronary Session 2, Coronary Arena, Mugunghwa Hall 1, Level 1, 3:00 PM - 4:00 PM

Roxana Mehran, MD (Professor of Medicine at Mount Sinai School of Medicine) had a lecture about 'New anti-platelet agent and platelet reactivity testing' during TCTAP session in Main Arena.

Prasugrel is a thienopyridine but with 10-fold greater anti-P2Y12 receptor inhibitory activity. Prasugrel has a more rapid onset, irreversibly binds to the P2Y12 receptor, and inhibits platelet activity more consistently and extensively than do standard and higher doses of clopidogrel. In the Trial to Assess Improvement in TRITON-TIMI 38 (Therapeutic Outcomes by Optimizing Platelet Inhibition with Prasugrel-Thrombolysis in Myocardial Infarction) study, ACS patients scheduled for PCI were treated with either clopidogrel (300 mg loading dose, then 75 mg daily) or prasugrel (60 mg loading dose, then 10 mg daily) and followed over the subsequent 6-15 months. In the prasugrel-treated patients, there was a 19% relative risk reduction in the primary efficacy endpoint (death from cardiovascular causes, nonfatal MI, and nonfatal stroke) compared with clopidogrel (Figure 1). Additionally, the

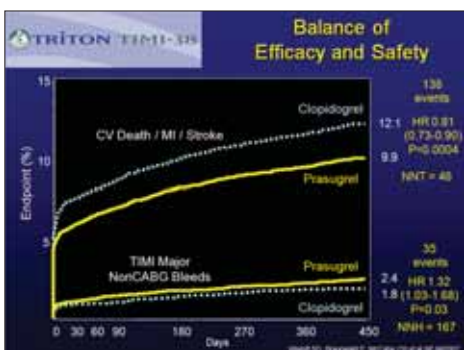


Figure 1

frequency of both early and late stent thrombosis was reduced by 52%. This benefit was magnified in high-risk groups, such as patients with diabetes mellitus or STEMI, and was apparent as early as day 3. There was, however, a sacrifice in that prasugrel was associated with a statistically significant increase bleeding. The risk for bleeding was related to diabetes

status with statistically significant excess risk with prasugrel vs clopidogrel in patients without diabetes..

Ticagrelor is a reversible, direct-acting, oral antagonist of the P2Y12 receptor, the cyclo-pentyl-triazolo-pyrimidines. Ticagrelor provides faster, greater, and more consistent P2Y12 inhibition than clopidogrel. After 14 and 28 days of dosing, ticagrelor inhibited 90%-95% of platelet activity as compared with 60% with clopidogrel. Since less than 1% of the ticagrelor dose is found in the urine, dose adjustments may be warranted in hepatic but not in renal dysfunction. In the PLATO (PLATelet inhibition and patient Outcomes) study, patients with ACS were treated with either clopidogrel (300 mg loading dose with an additional 300 mg for patients undergoing PCI, then 75 mg daily) or ticagrelor (180 mg loading dose with an additional 90 mg for patients undergoing PCI, then 90 mg twice daily) and followed over the subsequent 12 months. In the ticagrelor-treated patients, there was a 16% relative risk reduction in the primary efficacy endpoint (death from cardiovascular causes, MI, and stroke) (Figure 2). There was a 22% relative risk

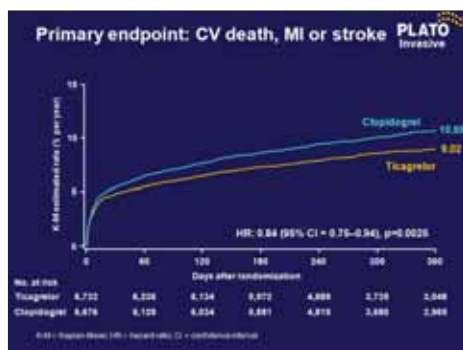


Figure 2

reduction in all-cause mortality, and the risk for definite stent thrombosis was reduced by 33%. These benefits were maintained in patients managed with PCI, where there was no significant difference in the primary safety endpoint of major bleeding or the combination endpoint of major and minor bleeding between the ticagrelor and clopidogrel groups.

The GRAVITAS trial, showing no benefit of double-dose clopidogrel (150 mg) in patients with high on-treatment platelet reactivity after PCI, was published in the March, 2011 issue of the Journal of the American Medical Association. In the GRAVITAS (Gauging Responsiveness with A VerifyNow assay - Impact on Thrombosis And Safety) trial, platelet reactivity using the VerifyNow P2Y12 assay (Accumetrics, San Diego, CA) in 5,429 stable or unstable CAD patients who had received DES was studied. Among them, 2,214 subjects were found to have high residual platelet reactivity (defined as platelet reactivity unit [PRU] values  $\geq 230$ ) between 12 and 24 hours after DES implantation. This group was randomized to either high-dose (n=1,109; 600 mg initial dose and 150 mg daily thereafter) or standard-dose (n=1,105; no additional loading dose and 75-mg daily thereafter) clopidogrel. At 6 months, the rate of the primary endpoint (composite of death from cardiovascular causes, nonfatal MI, or stent thrombosis) and its individual components were similar in high-dose and standard-dose patients (Figure 3). In addition, severe or

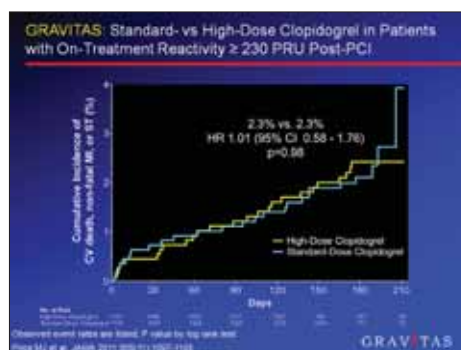


Figure 3

moderate bleeding was not increased by the high-dose regimen (1.4% vs. 2.3%; HR, 0.59; 95% CI 0.31-1.11; P=0.10). Compared with standard-dose clopidogrel, the increased dose led to a reduction in the prevalence of high on-treatment reactivity at 30 days (40% vs. 62%) and at 6 months (36% vs. 60%; P<0.001 for both comparisons). A secondary analysis, meanwhile, looked at patients who had

high on-treatment reactivity and were assigned to receive the standard dose. This subgroup was compared with 583 randomly chosen controls from the original cohort who had normal clopidogrel response and also received the standard dose. The rate of the primary endpoint was numerically greater in the high on-treatment reactivity group than in controls. However, the event rate was 2.3% which was much lower than expected (5%) by authors, It must be interpreted with caution (Figure 4).



Figure 4

The genetic substudy, the Genotype Information and Functional Testing (GIFT), was presented at the American College of Cardiology 2011 Scientific Sessions. The main findings show that patients with either one or two CYP2C19 loss-of-function alleles (\*2) do not generally respond to double-dose clopidogrel. It was presented that 11-fold increased risk of having persistently high platelet reactivity at 30 days in patients homozygous for the CYP2C19\*2 gene compared with patients with the wild-type gene and a 62% increase in those with one copy of this loss-of-function gene. To get a good pharmacodynamic response in patients not responding to standard-dose clopidogrel, then 150 mg is not likely to work in carriers of the \*2 gene. This is the first study to look at how genotype information can complement platelet-function testing. However, this result is a subgroup analysis of GRAVITAS and only included 14 events, it must be interpreted with caution, too.



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## Fellowship Training Course & Chinese Society of Cardiology at TCTAP

From Yesterday, Tutorial Arena , Level 4, Tuesday, April 26, 2:00 PM - 6:20 PM

Yesterday afternoon, the "Fellowship Training Course" was held in Tutorial Arena with hundreds of audiences. It was exciting to see and listen to A to Z of knowledge and technical know-how presented by the most experienced cardiologists. In particular the step by step learning points, which cover the two main interesting learning subjects: Left Main, Bifurcation and Chronic Total Occlusion Intervention. During three hours, the world's most qualified leaders in these fields shared their own experiences and provided many tips and tricks by presenting lectures and addressing questions from the audience. This session was specially designed for fellows and young cardiologists just starting their career, and all the presentations seek to give the attendant an understanding of the techniques performed on a daily basis.

"It is hoped that with this educational program, standardized consensus will have been shared in complex coronary intervention and the learning curve will have been transversed to some extent" said Dr. Seung-Jung Park (Asan Medical Center, Korea) and Dr. Junbo Ge (Zhongshan Hospital, China) the chair mans of this session.

Then, Chines Society of Cardiology (CSC) session had been continued. This session was co-organized by CVRF & CSC to

share experienced Chinese cardiologist's knowledge and technical know-how with world-wide audiences. Dr. Yong Huo (Peking University First Hospital, China) and Dr. Seong-

Wook Park (Asan Medical Center, Korea) chaired this session. Presenters, panelists and many audiences shared and enjoyed their interesting cases for one and half hours.



## Endovascular program: "More Technical, Practical and Applicable Tips & Knowledge".

Endovascular Arena, Mugunghwa Hall 2, Level 1, April 27, 2:00 PM - 6:00 PM, April 28, 8:30 AM - 6:15 PM

### Endovascular Session 1

#### SFA disease

**Crossing the Long SFA CTO: Techniques and Variables You Need to Know**

#### Back Ground

Endovascular intervention for chronic total occlusion of the SFA is widely spreading. However, various approaches do exist alongside the SFA-CTO; especially the guide wire selection approach is completely different with each operation. Recently, the SFA-CTO EVT success rate is 98%. To achieve long CTO recanalization, a bi-directional approach is necessary.

There are two hurdles for CTO intervention. The first, the CTO artery is not visible by angiography. The operator assumes CTO artery during wire manipulation. This hurdle is going to be resolved using echography when the SFA is not calcified. Echo guide wiring is very useful to visualize the CTO vessel. You just push the wire through the center of the plaque. Hard plaque can be a hurdle in causing the wire to deflect. To break through the core of hard plaque, you need a stiffer

wire. Sometimes, this process causes vessel perforation and we have to change to the knuckle wire technique. Subintimal tracking is easily run through the hard plaque, but stenting is necessary because the wire route is subintimal. Tough lesions are graft occlusions with SFA CTO. The anastomosis site is severely fibrosed and usually the Z shape native artery deformity that was caused by pulling the anastomosis site, is occluded by artificial grafts. Physically, the stiff wire does not cross the Z shape curved artery.

#### Sheath access point for SFA CTO intervention

1) Antegrade access site: most long SFA CTO occlusions start just after the common femoral artery. Standard approach is contralateral 6F guide sheath because this causes no inflow compromise during hemostasis by manual compression. Ipsilateral approach is chosen when the lesion is severely calcified because a strong back up is necessary to cross. A drawback of this approach is flow compromise during the sheath removal with manual compression.

2) Retrograde access: a common retrograde approach site is

the popliteal artery. Keep the patient at prone position; the popliteal artery is punctured with echo guidance in order to avoid penetrating the popliteal vein as well. A 4F to 6F long sheath is inserted and then the patient is turned to supine position. If there is a collateral distal SFA, you can puncture it from above knee portion in supine position (This method is invented by Dr. Urasawa). Popliteal artery hemostasis is performed by ballooning for 10-20 minutes at puncture popliteal

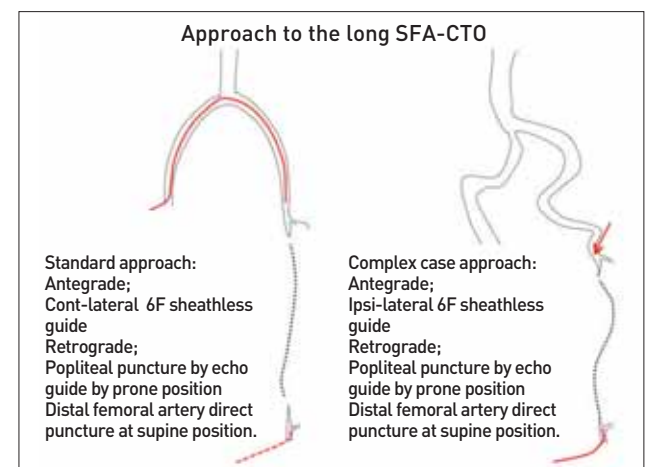


Figure 1

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from page 13

Wire characteristics for CTO  
Tabel 1

Size	0.014	0.018	0.035
Manipulation	Similar to PCI	Similar to PCI	Knuckle
Advantage	Less perforation	Controllable	Shorter wire crossing time
Disadvantage	Easy to broken	Chance of perforation	Difficulty re-enter from false to true lumen
Stent	May reduce total stent length	May reduce total stent length	100% (Mandatory to entire lesion)
Where	BK lesions. Unexpected curved iliac	Iliac and SFA	SFA and stent mandatory lesion. Perforation by 0.018 inch wire

artery site. (Approach methods are shown in Figure 1).

### Wire selection

We start with a 0.018 inch 12g wire with 4F catheter support. If the lesion is severely calcified and seems impossible to cross with a 0.018 inch wire, we change the strategy to a 0.035 inch wire with subintimal tracking procedure. It is necessary to get back to the true lumen at the end of the CTO. The outback device is not available in Japan; we need to penetrate the intima with a 0.018 inch wire (Characteristics of CTO wires are shown in the Table 1). The start with a slender wire or a 0.035 inch wire is controversial, because it is thought that there is no big difference between long subintimal stenting and plaque recanalization stenting in long term patency.

### Summary

Most of the long SFA-CTO are successfully recanalized using a bidirectional approach and fixed by a self-expanding stent.

*Shigeru Nakamura Kyoto Katsura Hospital Cardiovascular Center*

### Endovascular Session 2

#### Lower Extremity Disease

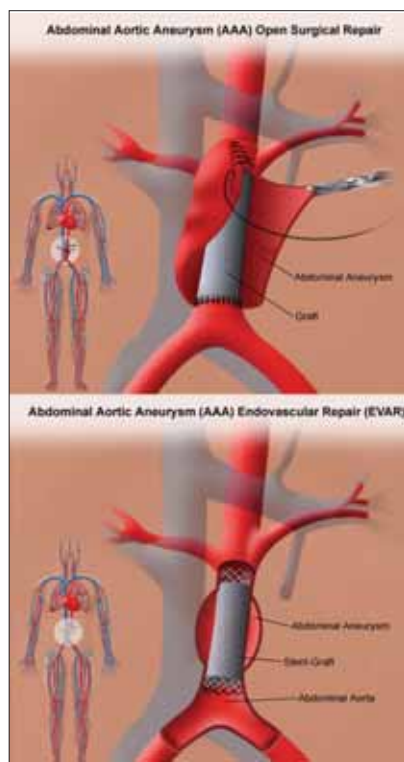
How to Perform Endovascular Interventions; Below the Knee Interventions: What You Need to Know Before You Start?

You need to know enough to answer questions such as “Why you’re doing the procedure?”, “How to do the procedure?” What to tell the patient and referring physician?”. The incidence of ‘Critical Limb Ischemia’ is still increasing up to 1 every 100 patients with peripheral artery disease; in case of diabetes, the risk may be increased up to 5 to 10 folds. Usually CLI occurs when the essential supply of nutrients falls below the cut-off level that will sustain tissue viability: ankle systolic pressure < 50 mmHg in non-diabetics and Toe systolic pressure < 30 mmHg in diabetics. The CLI presented with chronic ischemic rest pain, ischemic ulcer and ischemic gangrene. Only 50% of patients with CLI will be alive with 2 limbs at 6 to 12 months after diagnosis but 12 to 18% will die and 30 to 35% will undergo amputation, among them only 22% will walk again and 30% will stay bed-ridden. Dr. Issam D. Moussa will present the appropriate answers to the above-mentioned critical questions.

*Issam D. Moussa*

### Endovascular Session 3

#### Abdominal Aortic Aneurysm



Identifying Complications and the Management of Open and Endovascular AAA Repair.

We are now almost 20 years after the procedure of endoluminal grafting or non surgical sealing of abdominal aortic aneurysms were first introduced. To say this procedure has revolutionized the treatment of this problem is an understatement. Most patients who

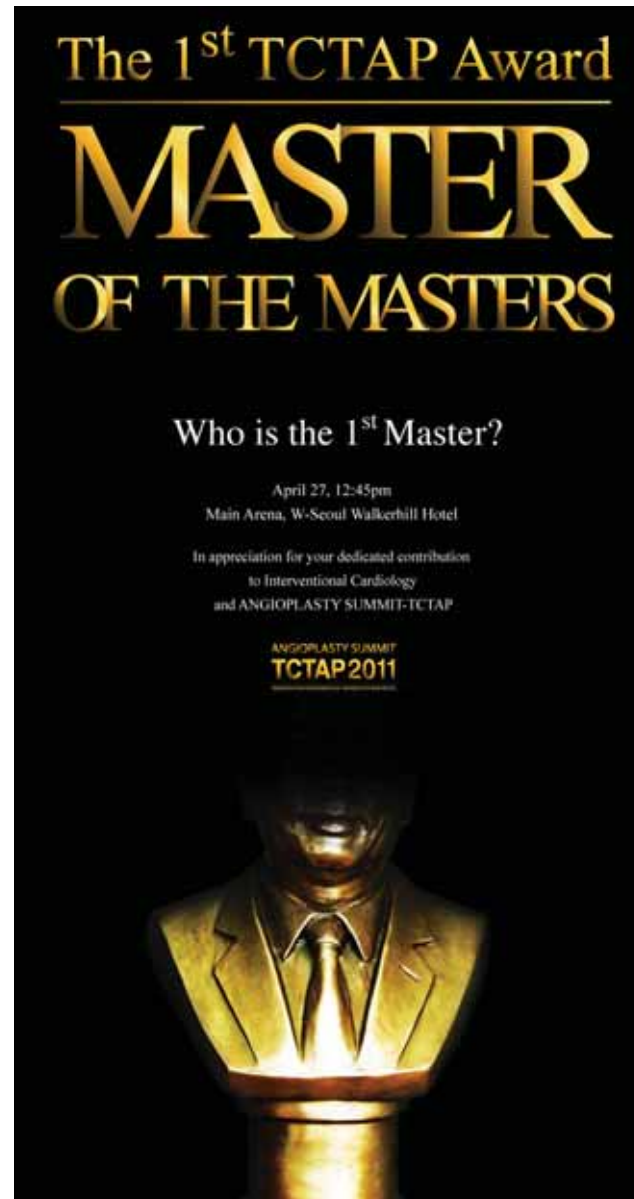
present with an abdominal aortic aneurysm are at least given an option for a non surgical, surgical or endovascular repair. Of course, with any new technology, new technology results in new complications. The complications that most people deal with are two types: acute and chronic. An acute complication usually means that there is a tear in the lumen or the endoluminal repair failed, both resulting in acute surgery. This complication is rare. More commonly are endoleaks which can result in the performance of repair procedures in the future. In his presentation, Dr. Heuser will talk about ways to ascertain whether a patient needs a percutaneous repair and how you monitor patients after endoluminal or surgical open repair.

*Richard R. Heuser, MD*

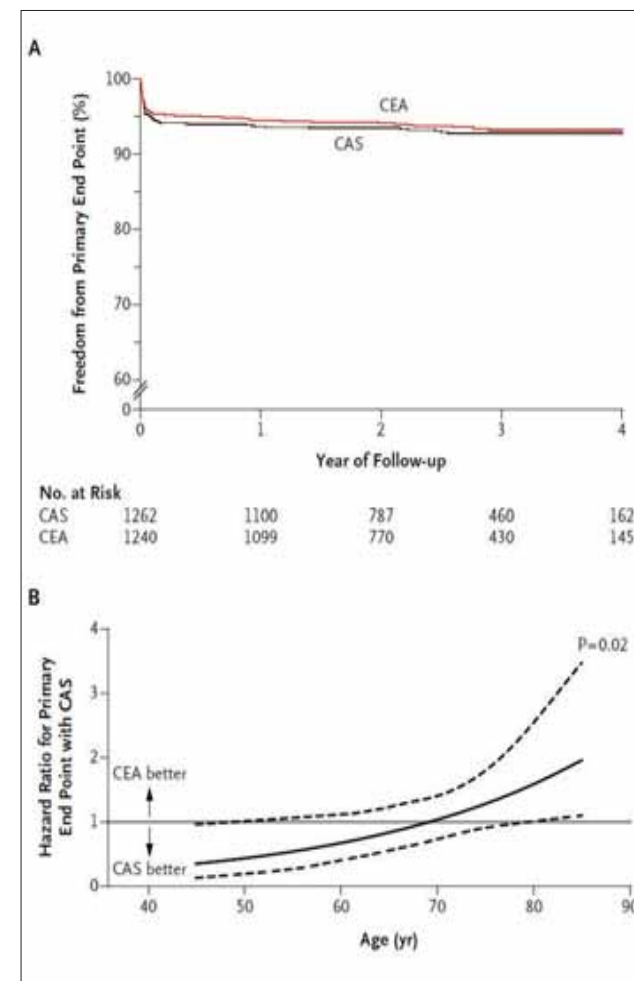
### Endovascular Session 4

#### Carotid Artery Disease

Originally published in the July 1, 2010, issue of NEJM, the Carotid Revascularization Endarterectomy vs. Stenting Trial (CREST) randomized 2,502 patients with either symptomatic or asymptomatic disease to carotid endarterectomy or stenting. The protocol included a lead-in phase with hands-on training for inexperienced operators and was conducted at 117 centers in the United States and Canada over a 9-year period. Overall, there was no significant difference in the estimated 4-year rates of the primary endpoint (composite of any periprocedural stroke, MI, or death, or the incidence of ipsilateral stroke ≤ 4 years) between the 2 groups. However, there was a higher risk of stroke with stenting and a higher risk of MI with surgery. CREST Trial Results Continue to Cause Controversy. The CREST trial was a very large and complex study that took more than a decade to complete. Critical analysis and questioning of results is essential to forwarding the science. There is a great deal more information on the relative efficacy of stenting and endarterectomy to emerge from the ongoing analysis of the data. Much has changed for stenting over the last 10 years, so I might also add that if we were to begin a similar study today, we might even be able to demonstrate that stenting was superior to endarterectomy. In this



session additional information will be presented by Dr. Michael R. Jaff in “Choosing the Best Therapy for Your Patient with Carotid Artery Disease”.



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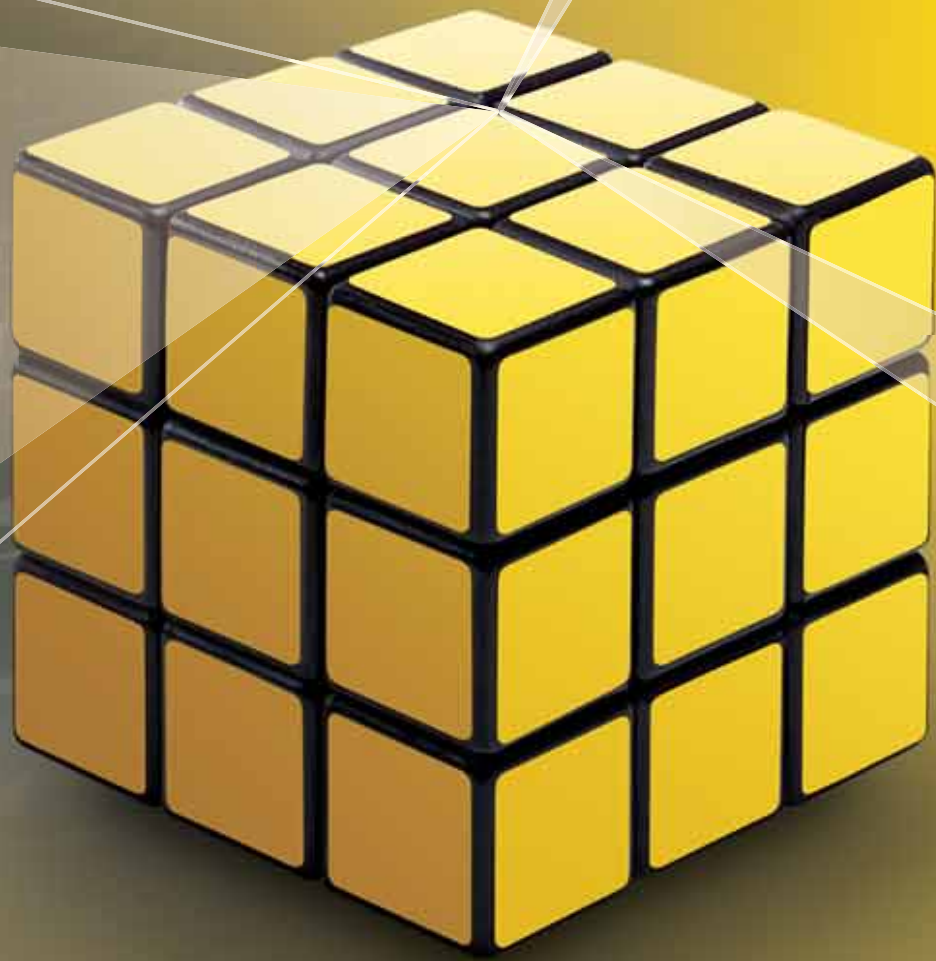


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## Resolute Integrity

ZOTAROLIMUS-ELUTING CORONARY STENT SYSTEM

**Introducing Resolute Integrity DES: designed to simplify your complex procedures.** Resolute Integrity combines the clinical advantages of Resolute DES with the groundbreaking continuous sinusoid technology of Integrity BMS.

The result is a revolutionary new DES that provides superior deliverability<sup>1</sup> and powerful clinical performance,<sup>2</sup> making it even easier for you to address the needs of your complex cases. Find out more at [www.medtronicstents.com](http://www.medtronicstents.com)

**Innovating for life.**

Resolute Integrity DES now has expanded indications for diabetes mellitus, multivessel disease, long lesions and small vessels.

<sup>1</sup>Bench test data vs. Abbott Xience Prime and Boston Scientific Promus Element DES on file at Medtronic, Inc.

These tests are not indicative of clinical performance.

<sup>2</sup>RESOLUTE All Comers 12-month data. RESOLUTE All Comers evaluated the Resolute stent.

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