CardioVascular Summit
TCTAP Daily

Thursday, April 30, 2015

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Today's Highlights

Endovascular Symposium
8:30 AM - 12:30 PM
Endovascular & Structural Heart Theater, Level 1

Eye on ACS Trials
8:30 AM - 10:00 AM
Room 104, Level 1

Pediatric Structural Heart Disease Symposium
8:30 AM - 6:15 PM
Room 105, Level 1

Moderated Competition Session
8:30 AM - 6:00 PM
Exhibition Hall, Level 1

Late Breaking Clinical Trials
9:30 AM - 10:54 AM
Coronary Theater, Level 1

Left Main & Bifurcation Summit
10:00 AM - 11:30 AM
Room 104, Level 1

Live Case Session - China
11:00 AM - 12:00 PM
Coronary Theater, Level 1

ACC-i2@TCTAP 2015
11:30 AM - 12:30 PM
Room 104, Level 1

CCT@TCTAP 2015
2:00 PM - 3:30 PM
Room 104, Level 1

Structural Heart Disease Symposium
2:00 PM - 6:00 PM
Endovascular & Structural Heart Theater, Level 1

Live Case Session - Germany
3:30 PM - 4:30 PM
Coronary Theater, Level 1

Masters' Video Live Session
3:30 PM - 5:45 PM
Room 104, Level 1

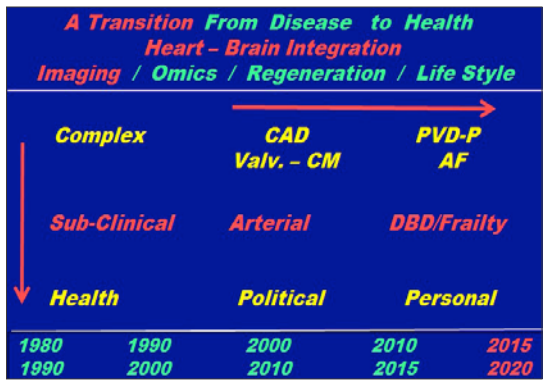
Inside this Issue

Hightlights from Yesterday: Special Keynote Lectures

Transition from Cardiovascular Disease to Health (2015-2020): Subclinical Disease at the Basic, Clinical, and Population Level

Valentin Fuster, MD
Mount Sinai School of Medicine

In decades past and to the present day, great effort has led to great advances in imaging techniques and the features of "high-risk vulnerable plaques" (HRP) that are prone to rupture and cause events have been well defined. Recent pivotal studies have helped us to understand that rupture-prone atherosclerotic plaques rarely exist in isolation, but it is far more appropriate to consider the patient's entire vascular tree. This has changed an important paradigm shift and extended our outlook towards degenerative brain disease (DBD), which is intimately linked to the overall burden of HRP. This HRP-DBD axis is operative across a very broad spectrum of diseases, from macrovascular occlusions leading to MI or stroke, to microvascular small vessel changes causing Alzheimer's disease, and vascular cognitive impairment. Clinically, cardiovascular disease (CVD) is known to be a disease due to aging, but lately molecular level of studies also proved that the oxidative stress and unhealthy lifestyles such as smoking, obesity, and mental stress shorten the telomeres in the aspect of cellular aging. From 2010, Valentin Fuster initiated a study in an attempt to identify and treat patients 'at-risk' for CVD events, but without manifestations of atherothrombotic disease and the results will soon be at hand. Over 7,500 "subclinical cardiovascular disease" patients were followed and this study is expected to show new imaging and biological factors are associated with the presence and progression of atherosclerosis. As cardiologists, we should make further progress in fighting CVD, primarily from the coronary vessels, and looking at the patient overall; we must consider the burden of HRP, and even the genetics of the disease to be correlated, In this way, we will make a quantum leap in understanding of how cardiovascular disease starts and progresses.



The Evolution of Interventional Cardiology: Past, Now, and Future Perspectives

Spencer B. King, III, MD
Emory University School of Medicine

The event that began the revolution in cardiology was the performance of coronary interventions by Andreas Gruentzig in 1977. Admittedly, this development was made possible by his predecessors who had developed coronary arteriography (Mason Sones) and percutaneous revascularization (Charles Dotter). It was also necessary to know that coronary bypass surgery was an effective therapy for coronary artery disease before these percutaneous attempts could be conceived of. Following the first coronary interventions, Gruentzig demonstrated his results at the American Heart Association meeting in 1977. The response was overwhelming, and physicians began

Continued on page 11

Meeting Information

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

Certificate of Attendance
- **Level 1, Registration Booth**
  Certificate of Attendance for TCTAP 2015 will be distributed along with badges.

Conference Bag Pick-up
- **Level 1, Exhibition Hall**
  Thursday, April 30 7:00 AM – 6:00 PM
- **Level 1, Registration Booth**
  Friday, May 1 6:00 AM – 12:30 PM

CVRF Booth (Organizing Secretariat)
- **Level 1, Grand Ballroom Lobby, CVRF Booth**
  Thursday, April 30 6:00 AM – 7:00 PM
  Friday, May 1 6:00 AM – 12:30 PM

Cyber Station
- Level 1, Grand Ballroom Lobby, CVRF Booth
- Level 1, B2 Hall, Exhibition Lounge

Exhibition
- **Level 1, B2 Hall, Exhibition Hall**
  Thursday, April 30 9:00 AM - 6:00 PM

Faculty Lounge
- **Invited Faculty Lounge: Level 2**
- **Faculty of the Year Lounge: Level 1, B2 Hall Lobby**
  Thursday, April 30 6:00 AM - 7:00 PM
  Friday, May 1 6:00 AM - 12:30 PM

Free Mobile Recharge
- Level 1, Grand Ballroom Lobby, CVRF Booth
- Level 1, B2 Hall, Exhibition Lounge
- Level 1, B2 Hall Lobby, Registration Lounge

Happy Hour
- **Level 1, B2 Hall, Exhibition Lounge**
  Thursday, April 30 10:00 AM & 3:00 PM

Information Desk
- Level 1, Grand Ballroom Lobby, CVRF Booth
- Level 3, Main Arena Lobby

Learning Center
- Level 1, B2 Hall, Exhibition Lounge
- Level 2, Room 209 & 210

Lost and Found / Coat Room
- Level 1, B2 Hall Lobby, Coat Room (Next to the Registration Booth)

Prayer Room
- **Level 2, Room 202A**
  Thursday, April 30 8:00 AM - 6:00 PM

Preview Room (Slide Upload)
- **Level 2, Room 208**
  Thursday, April 30 6:00 AM - 7:00 PM
  Friday, May 1 6:00 AM - 12:30 PM

Registration
- **Level 1, B2 Hall Lobby, Registration Booth**
  Thursday, April 30 6:00 AM - 7:00 PM
  Friday, May 1 6:00 AM - 12:30 PM

Wi-Fi Zone
- Level 1 - Coronary Theater, Endovascular & Structural Heart Theater, Room 104 & 105, CVRF Lounge, Exhibition Hall, Faculty of the Year Lounge, Registration Booth
- Level 2 - Invited Faculty Lounge, Preview Room
- Level 3 - Main Arena

The 3rd TCTAP

Best Young Scientist Award

Thursday, April 30, 10:55 AM
Coronary Theater

Are you curious about the next generation of interventional cardiologist?

Please come and see the third winner of TCTAP Best Young Scientist and congratulate on the rising leader of interventional cardiology field!

You can be the next TCTAP Best Young Scientist!

In keeping with its mission to support the young physicians who need to develop and enrich their academic and clinical work experience, TCTAP is presenting TCTAP Best Young Scientist Award annually in the amount of 5,000 USD to the best presenter.

We cordially invite you to

ACT Tour @ Asan Medical Center

» Program
- Live Case Demonstration, Presentation and Q&A
- Tour of Cath lab, CCU and Other Facilities

» Schedule
- Tour 1 : April 30 (Thu) at 10 AM
- Tour 2 : April 30 (Thu) at 4 PM

* Each tour will be limited up to 12 people.

» Onsite registration & Pick-up Place
ACT Desk at CVRF Booth (Level 1 Lobby, COEX)

For more information, visit www.cvrf.org/act

Download the TCTAP2015 Mobile APP!

The TCTAP2015 mobile app is your essential tool for navigating the conference and planning your schedule.

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Plan your schedule
- Scheduling tools to create a customized agenda
- Take notes

Exhibition
- Exhibitor & Exhibit hall information

View the latest news
- Video Recordings of highlights and wrap-up interviews
- Receive real-time reminders and updates

Look into TCTAP2015
- General Information of TCTAP
- Venue map

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.

Today's Programs: Thursday, April 30, 2015

Coronary Theater

8:30 AM - 6:00 PM
Coronary Theater, Level 1

Live Case Session IV
8:30 AM - 9:30 AM

Coronary Session III. Late Breaking Clinical Trials & Leading Clinical Trials from Asan Medical Center
9:30 AM - 10:54 AM

Live Case Session V - China
11:00 AM - 12:00 PM

Coronary Session IV
12:00 PM - 12:30 PM

Live Case Session VI
2:00 PM - 3:00 PM

Coronary Session V
3:00 PM - 3:30 PM

Live Case Session VII - Germany
3:30 PM - 4:30 PM

Coronary Session VI
4:30 PM - 5:00 PM

Live Case Session VIII
5:00 PM - 6:00 PM

Endovascular Symposium

8:30 AM - 12:30 PM
Endovascular & Structural Heart Theater, Level 1

IV. Abdominal Aortic Aneurysm or Dissection Intervention
8:30 AM - 9:30 AM

Live Case Session IV. Carotid Intervention
9:30 AM - 10:30 AM

V. Carotid Intervention
10:30 AM - 11:30 AM

Live Case Session V. AAA Intervention
11:30 AM - 12:30 PM

Structural Heart Disease Symposium

2:00 PM - 6:00 PM
Endovascular & Structural Heart Theater, Level 1

I. Valvular Disease Session
2:00 PM - 4:15 PM

Live Case Session: LAA Closure
4:15 PM - 5:10 PM

II. LAA Closure & Renal Denervation Session
5:10 PM - 6:00 PM

Pediatric Structural Heart Disease Symposium

8:30 AM - 6:15 PM
Room 105, Level 1

I. All You Need to Know About PFO Closure
8:30 AM - 10:00 AM

II. Taped Case & Lecture I
10:00 AM - 11:05 AM

III. Percutaneous Pulmonic Valve Implantation: Update 2015
11:05 AM - 12:30 PM

IV. Taped Case & Lecture II
2:00 PM - 3:10 PM

V. Round Table Discussion
3:10 PM - 4:50 PM

VI. Taped Case & Lecture III
4:50 PM - 6:15 PM

Focused Workshops

8:30 AM - 11:30 AM
Room 104, Level 1

Eye on ACS Trials: Making the Right Choice
8:30 AM - 10:00 AM

Left Main & Bifurcation Summit
10:00 AM - 11:30 AM

Masters' Video Live Session II: Case-Based Learning

3:30 PM - 5:45 PM
Room 104, Level 1

Complex Lesion PCI II
3:30 PM - 4:45 PM

Transcatheter Valve Therapeutics
4:45 PM - 5:45 PM

Partnership Session with International Society

Room 104, Level 1

ACC-i2 @ TCTAP 2015
11:30 AM - 12:30 PM

CCT @ TCTAP 2015: Improving Success in CTO PCI
Co-organized by CCT
2:00 PM - 3:30 PM

Award

Chien Foundation Award for Outstanding Lectureship & Lifetime Achievement in PCI
12:30 PM - 12:35 PM
Room 104, Level 1

Morning Roundtable Forum: Meet the Experts over Breakfast

7:00 AM - 8:10 AM

Lower Extremity Intervention
Organized by CVRF
Endovascular & Structural Heart Theater, Level 1

Left Main Disease
Organized by CVRF and Supported by Educational Grant from Abbott Vascular
Coronary Theater, Level 1

New Horizon for Aortic Valve Treatment
Organized by CVRF and Supported by Educational Grant from Edwards Lifesciences Korea
Room 104, Level 1

DES Failure
Organized by CVRF
Room 105, Level 1

Non-Invasive Imaging
Organized by CVRF
Room 203, Level 2

Therapeutic Strategies for Diabetes Mellitus Patient
Organized by CVRF and Supported by Educational Grant from Medtronic Japan Co., Ltd.
*The official language of this session will be Japanese.
8:30 AM - 10:30 AM
Room 203, Level 2

Lunchtime Activities

12:45 PM - 1:45 PM

Ticagrelor: Breaking the Limit in ACS
Organized by CVRF and Supported by Educational Grant from Astrazeneca Korea
Endovascular & Structural Heart Theater, Level 1

Introducing the Advanced Workhorse DES: Resolute Onyx (Powered by CoreWire Technology)
Organized by CVRF and Supported by Educational Grant from Medtronic Co., Ltd.
Coronary Theater, Level 1

How Can We Simplify Complex PCI?
Organized by CVRF and Supported by Educational Grant from OrbusNeich Medical Co., Ltd.
Room 104, Level 1

Know the Difference
Organized by CVRF and Supported by Educational Grant from Johnson & Johnson Medical Korea and Johnson & Johnson K. K.
Room 105, Level 1

FFR, IMR and OCT
Organized by CVRF and Supported by Educational Grant from St. Jude Medical
Room 203, Level 2

Evening Symposium

Transcatheter Closure of ASD in 2015
Organized by CVRF and Supported by Educational Grant from St. Jude Medical
6:20 PM - 8:15 PM
Room 105, Level 1

Moderated Oral Abstract Competition I, II

8:30 AM - 12:20 PM / 2:00 PM - 6:00 PM
Abstract Zone I & II, Level 1

Moderated Complex Case Competition I, II, III

8:30 AM - 12:30 PM / 2:00 PM - 6:00 PM
Case Zone I & II & III, Level 1

Live Case Transmission from World-renowned Medical Centers

Asan Medical Center, Seoul, South Korea
- April 30, Coronary Theater, Level 1

Fu Wai Hospital, Beijing, China
- April 30, 11:00 AM - 12:00 PM, Coronary Theater, Level 1
- Operators: Runlin Gao, Jie Qian, Shubin Qiao, Yongjian Wu, Yuejin Yang

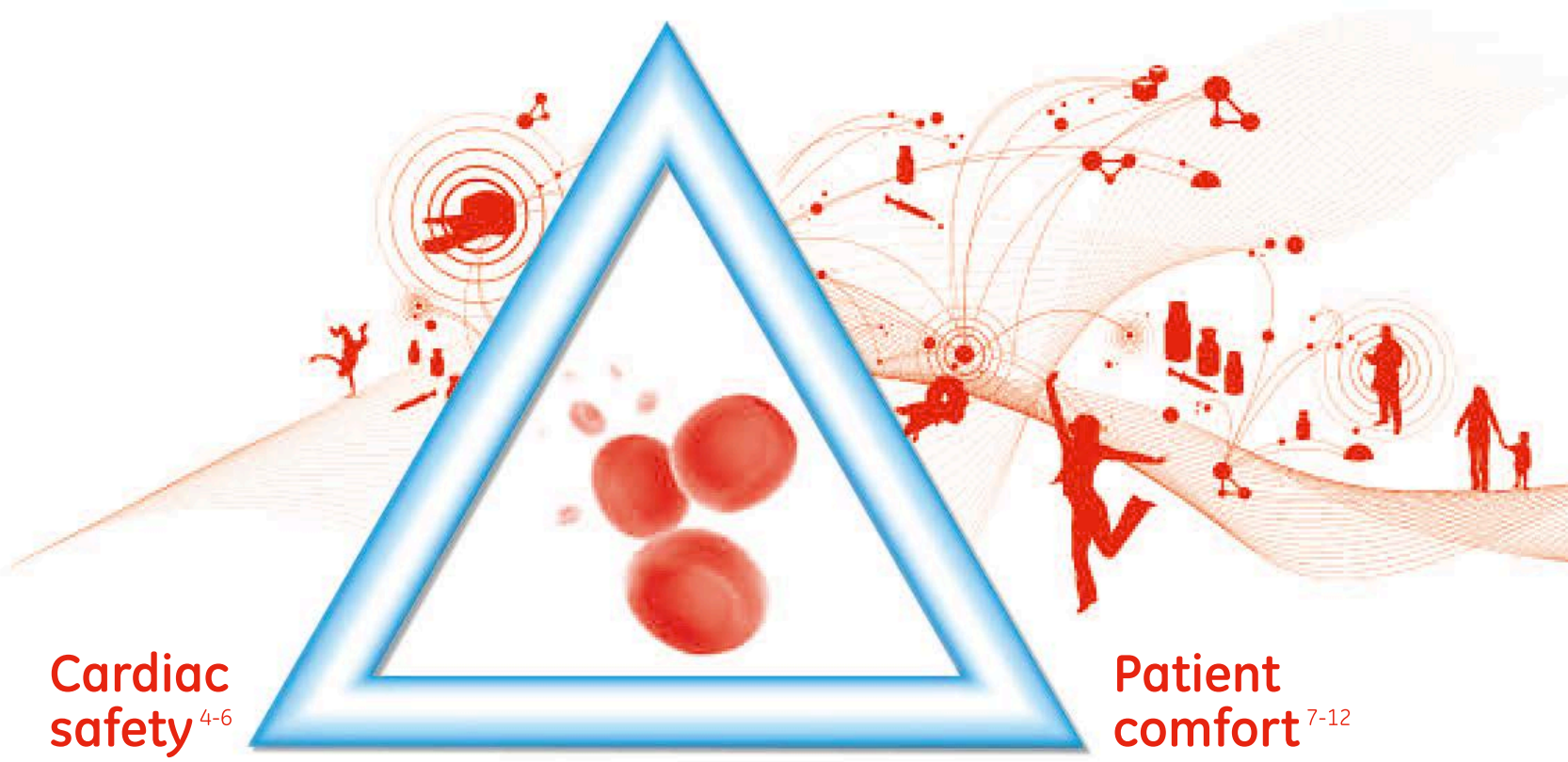
University Hospital Bonn, Bonn, Germany
- April 30, 3:30 PM - 4:30 PM, Coronary Theater, Level 1
- Operators: Christoph Hammerstingl, Fritz Mellert, Georg Nickenig, Jan-Malte Sinning, Mariuca Vasa-Nicotera, Armin Welz, Nikos Werner

GE Healthcare

Strong evidence[1-12]
not only in CIN

A growing body of statistically significant evidence supports the use of Visipaque - not only in trying to prevent CIN, but also in trying to prevent major adverse cardiac events and to improve patient comfort

Renal tolerability[1-4]



Cardiac safety[4-6]

Patient comfort[7-12]

imagination at work

ISOSMOLAR
VISIPAQUE™
(IODIXANOL)
In Balance with the Body

References. 1. Aspelin P et al. (NEPHRIC study). N Engl J Med 2003; 348: 491-9. 2. Jo S-H et al. (RECOVER study). JACC 2006; 48: 924-30. 3. Hernandez F et al. Eur Heart J 2007; 28 (Abstract Supplement): Abs 463. 4. Nie B et al. Poster presented at SCAI-ACCi2 2008. Chicago, USA. 5. Davidson CJ et al. The COURT Trial. Circulation 2000; 101: 2172-7. 6. Harrison JK et al. Circulation 2003; 108(supp. IV): 354-5. 7. Verow P et al. Brit J Radiol 1995; 68: 973-8. 8. Tveit K et al. Acta Radiologica 1994; 35: 614-8. 9. Palmers Y et al. Eur J Radiol 1993; 17: 203-9. 10. Justesen P et al. Cardiovasc Intervent Radiol 1997; 20: 251-6. 11. Manke C et al. Acta Radiologica 2003; 44: 590-6. 12. Kl©™w NE et al. Acta Radiologica 1993; 34: 72-7.

효능·효과: 1) 성인: 심혈관조영, 뇌혈관조영, 말초동맥조영, 복부혈관조영, 정맥요로조영(IVP), 정맥조영, CT 조영증강, 척수조영, 관절조영, 자궁난관조영, 내시경역행췌담관조영(ERCP), 소화관조영 2) 소아: 심혈관조영, 정맥요로조영, CT 조영증강, 소화관조영 **용법·용량:** 이 약은 동맥, 정맥, 척수강, 체강내로 투여할 수 있습니다. 추천 투여용량은 제품설명서를 참고하시기 바랍니다. **금기:** 1) 이 약 및 이 약의 구성성분, 요오드계 약물에 과민반응 및 그 병력이 있는 환자 2) 중증 갑상샘 질환 환자 3) 중증 국소감염 또는 균혈증과 같은 전신감염이 있는 환자에 대한 척수조영 **신중투여:** 1) 극도의 전신 쇠약 환자 2) 기관지천식 환자 3) 중증 심장애 환자 4) 중증 간장애 환자 5) 중증 신장애 환자 * 본제품에 대한 자세한 내용은 제품 설명서를 참고하십시오

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JB1494KO

Left Main and Bifurcation Summit

In the Left Main and Bifurcation Summit, there was a great debate between cardiologists and cardiac surgeons with respects to which is the best treatment strategy for left main coronary artery stenosis: coronary artery bypass surgery (CABG) or percutaneous coronary intervention (PCI)?

CABG Is Still Standard Treatment for Left Main Disease

David Paul Taggart, MD
University of Oxford

Dr. David Paul Taggart, a very famous British surgeon, said that CABG was still the standard treatment for left main disease. Almost four decades ago, an observational study suggested a long-term survival benefit of CABG in comparison to medical therapy. This finding was subsequently confirmed in several registries and small randomised trials. Since then, medical therapy has improved substantially but the perception that revascularization improves prognosis has persisted. With the introduction of PCI, attempts were initially made to treat left main disease with balloon angioplasty and then bare metal stents, but both resulted in a very high rate of restenosis. However, over the last decades several registries (e.g. Main-COMPARE or Delta registry) have shown similar outcomes between PCI using drug eluting stents and CABG in terms of mortality and safety endpoints but with a persistently higher rate of repeat revascularisation with stents. More recently, two randomised trials of stents and CABG in left main disease have reported results that have both changed clinical practice and that have now been reflected by changes to the guideline recommendations. In 2012, the PECOMBAT trial (Dr. Seung-Jung Park and colleagues) was published in the *New England Journal of Medicine*. This trial of around 600 patients with left main stem disease reported no difference in mortality or stroke between CABG and stents at three years, but showed a lower risk of repeat revascularization with CABG. In contrast, in the subset of patients with left main stem disease in the SYNTAX trial, there were overall comparable MACCE outcomes for PCI and CABG at 5 years, but in the lower anatomical severity cases (SYNTAX score below 32) mortality actually seemed to be higher with surgery than PCI as did the incidence of stroke. It was only in patients with the highest SYNTAX scores (above 32) that CABG appeared to offer a survival benefit, albeit at a higher risk of stroke. These results were in contrast to SYNTAX patients with 3-vessel disease in whom CABG had a clear survival benefit in those with SYNTAX scores above 23 and with no difference in the incidence of stroke at 5 years. Therefore, while there is a general agreement that patients with the highest risk SYNTAX scores (who generally have multi-vessel coronary disease in addition to left main stem disease) are better treated with CABG, there is considerable doubt as to the optimal treatment in patients with lower severity scores. It is speculated that one reason why CABG may be relatively disadvantaged in lower severity 'isolated' left main stem disease (i.e. without the addition of proximal coronary artery disease) is that there may be too much competitive flow for bypass grafts and particularly arterial grafts. This uncertainty will be resolved by 2 large randomised trials: the EXCEL trial (which only included patients with SYNTAX scores below 32) and the Noble trial.

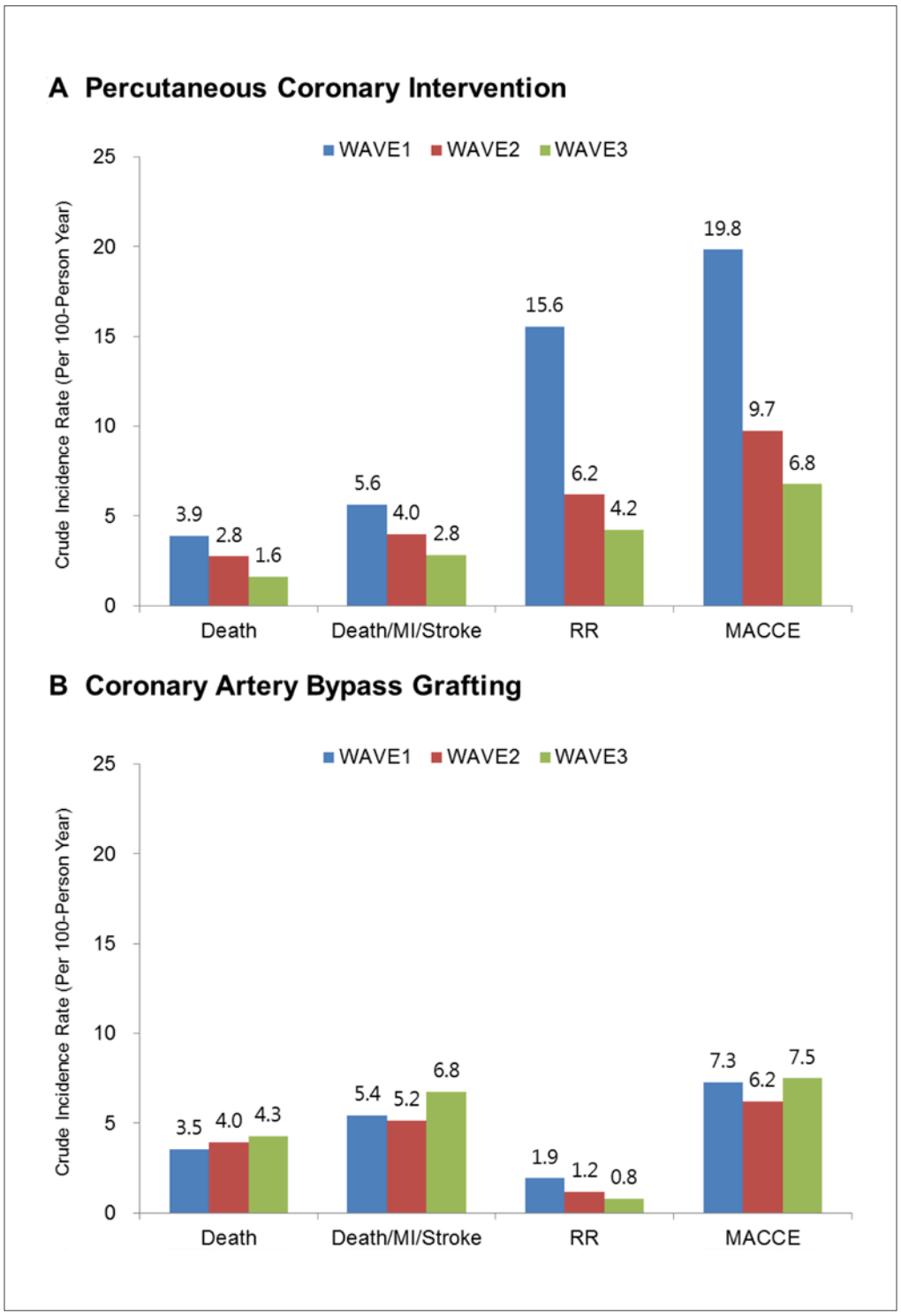


Figure 1. Unadjusted incidence rate (Per 100 Person-Year) in ASAN MAIN registry.
MACCE, major adverse cardiac or cerebral events; RR, repeat revascularization.

Left Main Disease Is Not Surgical Treatment Anymore: Data-Supported 2015

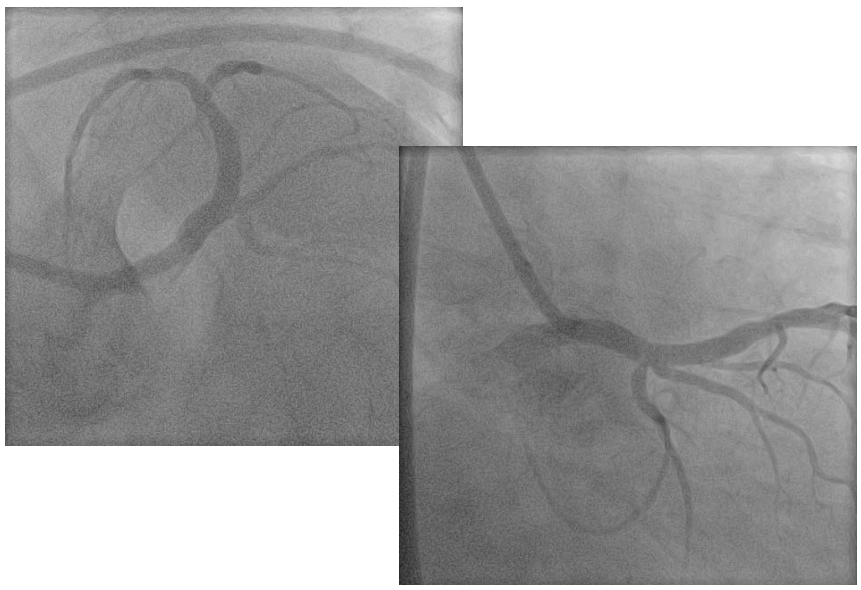
Seung-Jung Park, MD
Asan Medical Center

On the other hand, Dr. Seung-Jung Park, a globally renowned LM interventionist, advocated PCI with drug-eluting stent for the treatment of left main stenosis. He said that over the last 20 years, improvement in stent technology and an accumulation of operator experience has increased the number of elective PCI performed to treat unprotected left main coronary artery (UMLCA) stenosis. In addition, he briefly summarized the 5 year outcome of the PRECOMBAT study. At 5 years, MACCE occurred in 52 patients in the PCI group and 42 patients in the CABG group (cumulative event rates of 17.5% and 14.3%; HR, 1.27; 95% CI, 0.84 to 1.90; p=0.26). The two groups did not differ significantly in terms of death from any cause, myocardial infarction, or stroke as well as their composite (8.4% and 9.6%; HR, 0.89; 95% CI, 0.52 to 1.52; p=0.66). Ischemia-driven target vessel revascularization occurred more frequently in the PCI group than in the CABG group (11.4% and 5.5%; HR, 2.11; 95% CI, 1.16 to 3.84; p=0.012). Therefore, these findings supported current guidelines stating that left main stenting is a feasible revascularization strategy for patients with suitable coronary anatomy. Subsequently, he also presented the data from the ASAN MAIN registry. The ASAN MAIN registry started in January 1996, a very early period of left main PCI, and included all consecutive patients receiving PCI, mostly in the elective setting. The population size and events number was statistically analyzable in each period. In addition, all procedures were performed by experienced operators for ULMCA PCI. New techniques or technologies were timely adopted and homogenously applied through consensus among operators. Therefore, the ASAN MAIN registry provided a valuable opportunity to evaluate the trends in practice and outcomes of ULMCA revascularization. In this registry, he found that during last 16 years clinical outcomes of patients receiving PCI for significant ULMCA stenosis have improved with respect to the safety and efficacy of procedure, even though the comorbidities of patients and complexity of LMCA stenosis worsened over time. In addition, the gap in treatment effect between PCI and CABG has decreased (Figure 1). PCI could have been successfully substituted for CABG in a significant portion of revascularization for ULMCA stenosis. He also pointed out that unlike the situation in multivessel disease, both PCI and CABG showed similar rates of the composite of death, myocardial infarction, or stroke in patients with ULMCA stenosis. Therefore, he finally concluded that left main is not a surgical disease anymore.

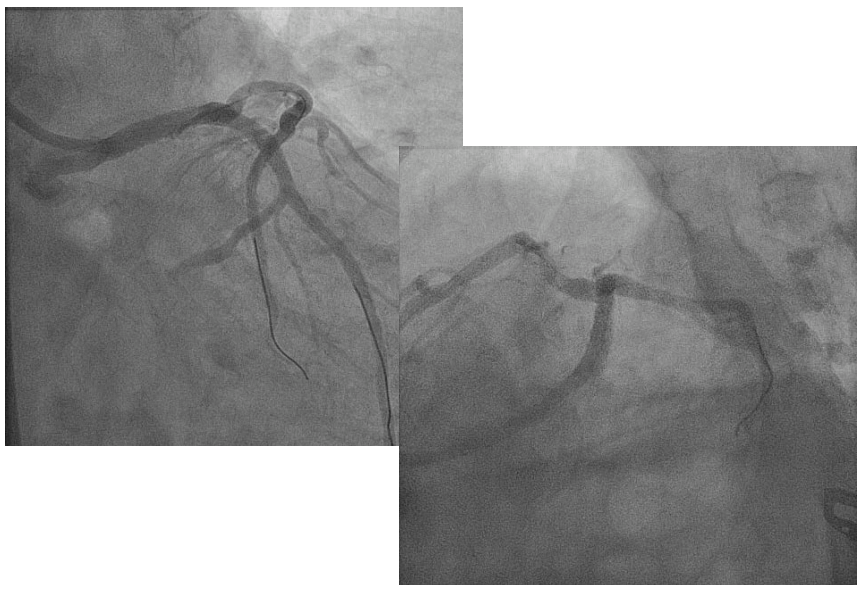
Thursday, April 30, 10:00 AM - 11:30 AM, Room 104, Level 1

Yesterday's Hot Lives

The angiogram showed small LCX with right dominant coronary system. The IVUS examination also confirmed insignificant stenosis at the ostial LCX. Based on these evidences favoring the provisional 1-stent approach, this LM bifurcation lesion was treated with simple crossover technique.

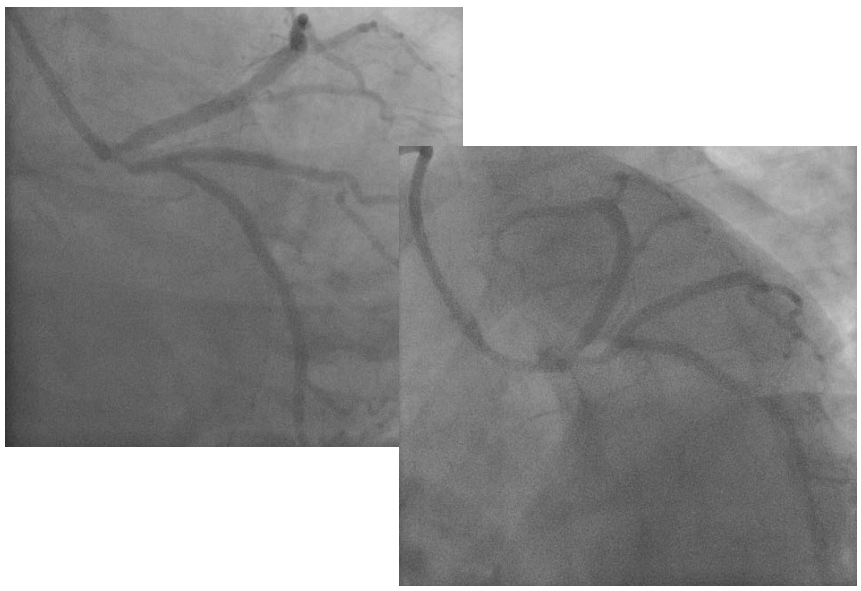


The angiogram shows wide angle between LAD and LCX. Also, IVUS examination identified minimal disease in the LCX ostium. Based on these anatomical features, they successfully treated the LM disease with simple crossover technique.

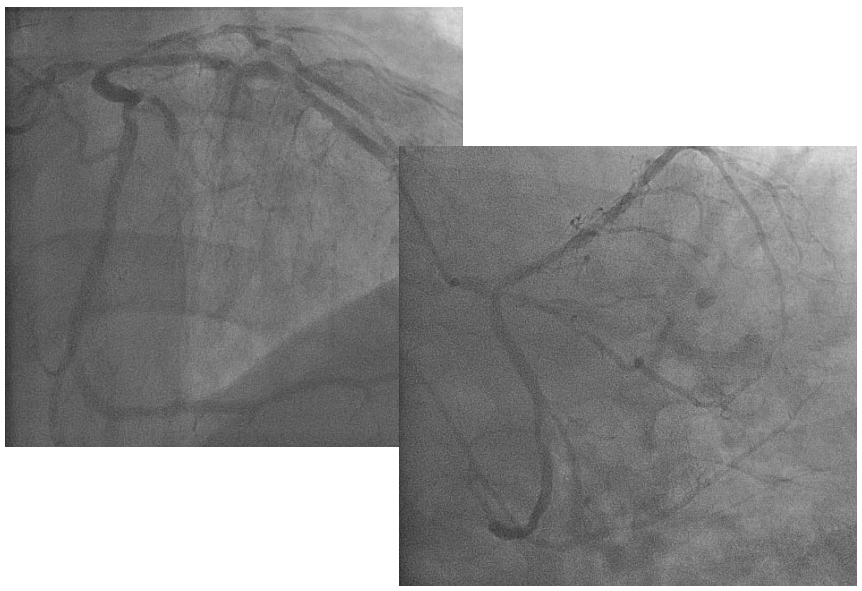


Today's Hot Lives

Q A 47-year-old female complained of effort angina for the last 2 months. Coronary angiogram shows LM disease with significant stenosis at the proximal portion of LCX. Which technique would you prefer to use to stent these lesions?



Q A 64-year-old male suffered from resting chest pain after brain surgery. ECG showed 1mm of ST elevation in the precordial lead V1 and cardiac biomarkers were markedly elevated. Coronary angiogram showed discrete stenosis at distal LM and diffuse LAD disease. What will be your treatment strategy for these lesions?



Answers on next issue

Leading Clinical Trials from Asan Medical Center

In this session, three lecturers presented three distinguished clinical trials: the BEST, PRECOMBAT, and STABLE study.

Seung-Jung Park, MD
Asan Medical Center

First, Dr. Seung-Jung Park, a principal investigator of these three trials, presented the results of the BEST (Trial of Everolimus-Eluting Stents or Bypass Surgery for Coronary Disease) trial. Current clinical guidelines recommend coronary artery bypass surgery (CABG) as the preferential revascularization strategy, particularly in patients with more complex coronary lesions, barring excessive preoperative risks. However, previous trials may have been limited by their use of first-generation drug-eluting stents. Outcomes of second-generation drug-eluting stents have significantly improved over the past decade. Randomized trials and meta-analysis have shown that the use of everolimus-eluting stents markedly reduces the rates of death, myocardial infarction, restenosis, and stent thrombosis, suggesting that everolimus-eluting stents are safer and more effective than first-generation drug-eluting stents. Therefore, Dr. Park planned and performed clinical trials to compare percutaneous coronary intervention (PCI) with everolimus-eluting stents and CABG. Between July 2008 and September 2013, a total of 880 patients with angiographic multivessel disease amenable to either PCI or CABG were randomly assigned to PCI with everolimus-eluting stent (438 patients) or CABG (442 patients) from 27 international heart centers. The primary outcome was a major adverse cardiac or cerebrovascular event (MACCE; a composite of death from any cause, myocardial infarction, stroke, or any repeat revascularization) after randomization. During a median follow-up of 4.6 years (interquartile range, 3.5 to 5.2 years), MACCE occurred in 87 patients (20%) in the PCI group and 59 patients (13%) in the CABG group (hazard ratio [HR] 1.54; 95% confidence interval [CI], 1.11 to 2.14; p=0.01, Figure 1). No significant differences were seen in the occurrence of safety composite of death, myocardial infarction, or stroke between groups (12% and 10%, HR 1.26; 95% CI 0.84 to 1.89; p=0.26). However, any repeat revascularization (11% and 5%; HR 2.09; 95% CI, 1.28 to 3.41; p=0.003) and spontaneous myocardial infarction (4% and 2%; HR 2.75; 95% CI, 1.16 to 6.54; p=0.017) were significantly more likely to occur with PCI. Dr. Park concluded that in patients with multivessel coronary artery disease, CABG significantly reduced the rate of MACCE. Although stent technology has advanced, CABG still showed more favorable clinical outcomes in the long-term. This study was published in the *New England Journal of Medicine*.

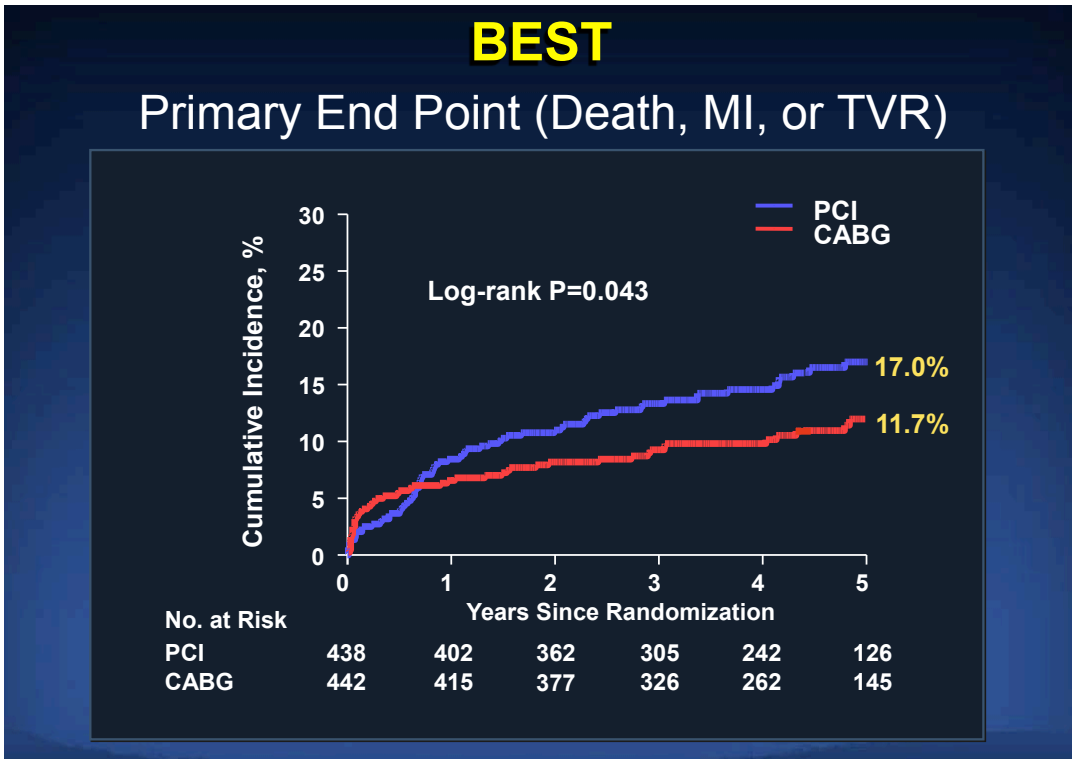


Figure 1. Primary endpoint of the BEST trial

Additionally, Dr. Jung-Min Ahn presented the 5-year outcomes of the PRECOMBAT study. Patients undergoing revascularization of unprotected left main coronary artery (ULMCA) stenosis are considered at high risk for adverse cardiovascular events. CABG had been considered the standard of care for ULMCA stenosis. However, over the last 20 years, improvement in stent technology and an accumulation in operator experience has increased the number of elective PCIs performed to treat ULMCA stenosis. Previously, investigators presented the primary results of the PRECOMBAT study that PCI was non-inferior to CABG for 1-year major adverse cardiovascular or cerebral event (MACCE; a composite of death, myocardial infarction, stroke, or ischemia driven target vessel revascularization) rate, which was the primary endpoint (absolute difference, 2%; upper margin of 95% CI, 5.6%; HR, 1.56; p=0.011). This year, they presented the 5-year results of the PRECOMBAT trial. At 5 years, MACCE occurred in 52 patients in the PCI group and 42 patients in the CABG group (cumulative event rates of 17.5% and 14.3%; HR, 1.27; 95% CI, 0.84 to 1.90; p=0.26). The two groups did not differ significantly in terms of death from any cause, myocardial infarction, or stroke as well as their composite (8.4% and 9.6%; HR, 0.89; 95% CI, 0.52 to 1.52; p=0.66). Ischemia-driven target vessel revascularization occurred more frequently in the PCI group than in the CABG group (11.4% and 5.5%; HR, 2.11; 95% CI, 1.16 to 3.84; p=0.012, Figure 2). Therefore, Dr. Ahn summarized that these findings supported the current guidelines stating that left main stenting is a feasible revascularization strategy for patients with suitable coronary anatomy.

Jung-Min Ahn, MD
Asan Medical Center

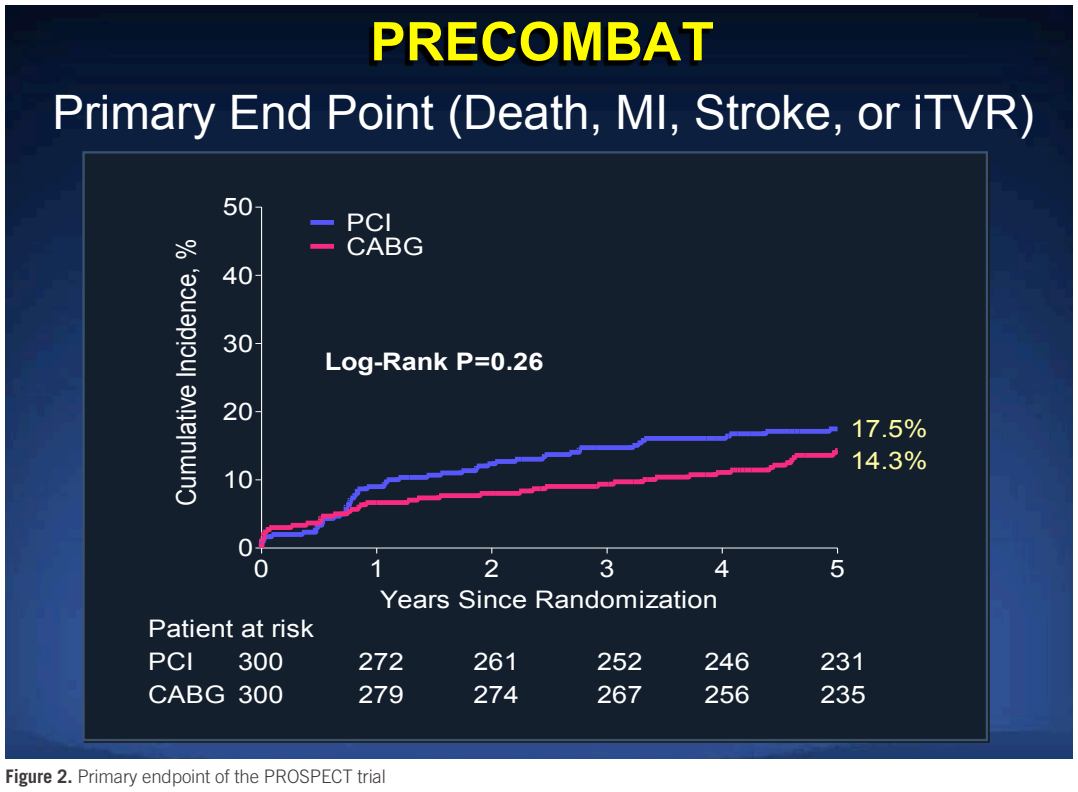


Figure 2. Primary endpoint of the PROSPECT trial

Soo-Jin Kang, MD
Asan Medical Center

Lastly, Dr. Soo-Jin Kang presented the results of the STABLE study. Clinical benefits of lipid-lowering with 3-hydroxy-3-methylglutaryl coenzyme A reductase inhibitors (statins) are well established. However, the optimal dose of intensive statin therapy for Asians is indeterminate. The lack of serial follow-up imaging data has limited our understanding as to how statins alter the natural course of coronary atherosclerosis. Thus, the aims of this study in a prospective cohort of deferred coronary artery lesions were: 1) to assess the effect of statin therapy on stabilizing plaque vulnerability within a fibroatheroma-containing target coronary artery segment 2) to compare the efficacy of high- vs. moderate-intensity statins (rosuvastatin 40 mg vs. 10 mg) on plaque modification assessed by using serial multimodality intravascular imaging at baseline and at 12-month follow-up. A total of 290 patients with a virtual histology intravascular ultrasound (VH-IVUS) defined fibroatheroma-containing index lesion were randomly assigned to rosuvastatin 40 mg vs. 10 mg (2:1 ratio). In 225 (78%) patients, grayscale and VH-IVUS were completed at both baseline and 12 months. Serial optical coherence tomography (OCT) imaging was available in 89 patients. After 12 months of rosuvastatin treatment, the overall percent necrotic

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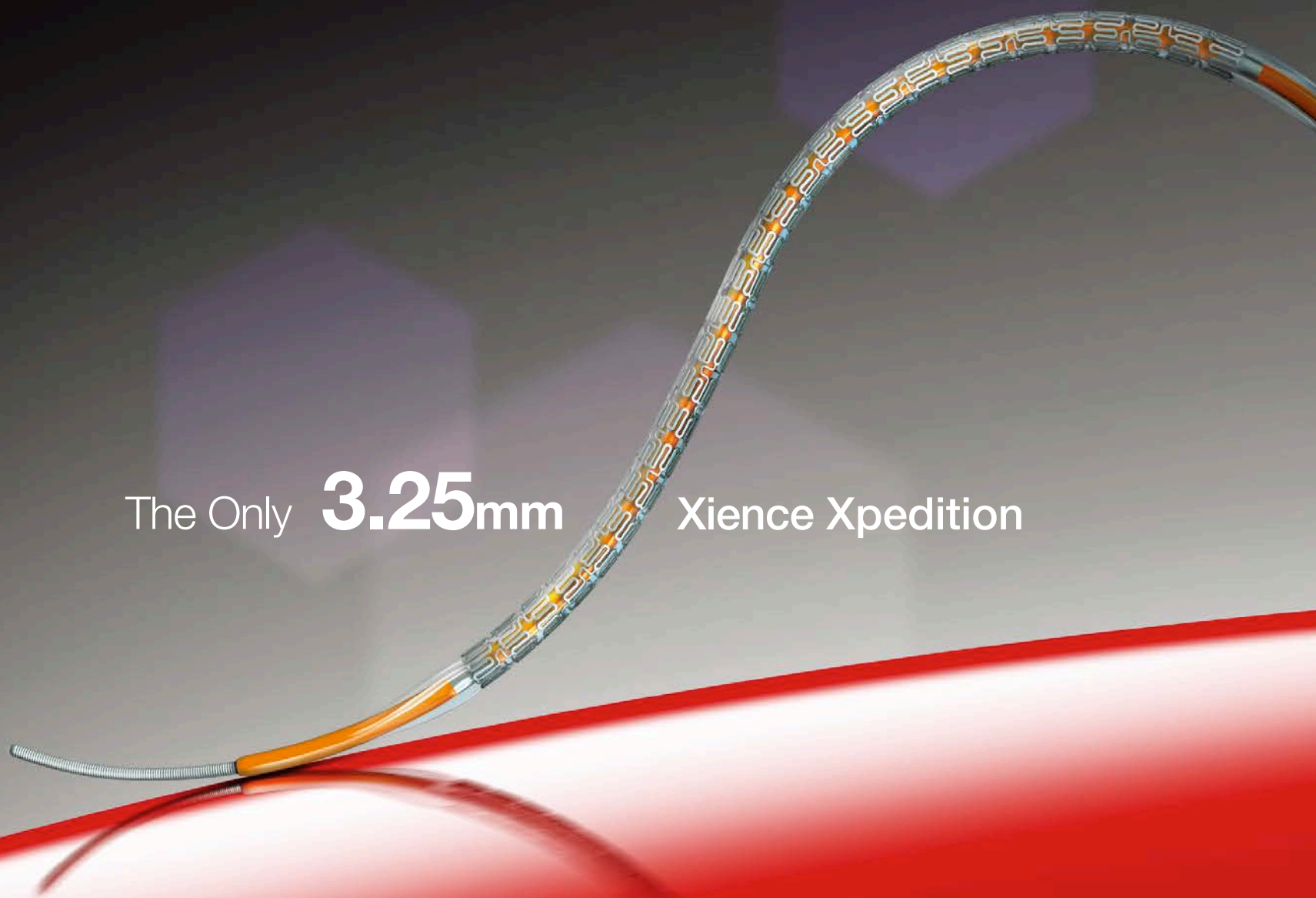

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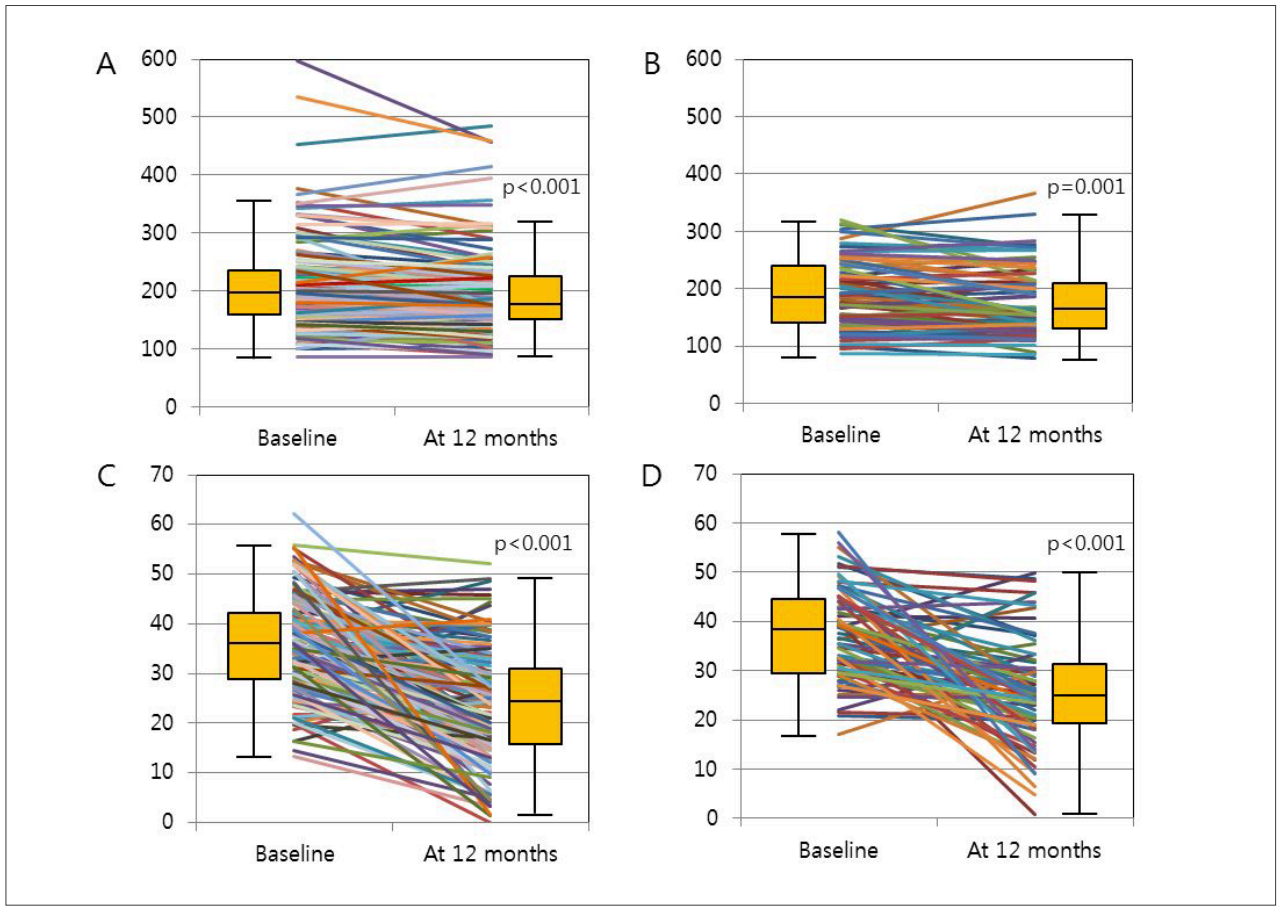


Figure 3. Outcomes of the STABLE trial. Baseline and 12-month follow-up normalized TAV (mm^3) in rosuvastatin 40 mg (A) and 10 mg (B) groups. Baseline and 12-month follow-up %NC at the index sites in rosuvastatin 40 mg (C) and 10 mg (D) groups. *p* values between baseline and 12-month follow-up.

Continued from page 7

core (%NC) volume by VH-IVUS (primary endpoint: 36.3% [inter-quartile ranges 9.4-43.5] vs. 18.3% [12.7-23.2], $p<0.001$) and the frequency of VH-thin-cap fibroatheroma (TCFA: 55% vs. 29%) and OCT-TCFA (44% vs. 20%) were significantly decreased within target segments ($p=0.001$). There was a significant reduction in normalized total atheroma volume (191.0 mm^3 [151.8-235.2] vs. 176.2 mm^3 [142.5-218.9], all $p=0.001$, Figure 3). Independent predictors of the %NC volume change were body mass index ($\beta=0.37$, 95% CI=0.05-0.70), high sensitive-C reactive protein ($\beta=-3.16$, 95% CI= -5.64-0.69), and baseline %NC volume ($\beta=-0.44$, 95% CI= -0.68-0.19, all $p<0.05$). Although rosuvastatin 40 mg (vs. 10 mg) more intensely reduced LDL-cholesterol, there were no significant differences in the efficacy parameters between the two groups. She concluded that serial multimodality intravascular imaging demonstrated that rosuvastatin stabilized lesion-specific, local plaque vulnerability and decreased plaque volume.

Thursday, April 30, 10:12 AM - 10:54 AM, Coronary Theater, Level 1

Eye on ACS Trials: Making the Right Choice

Today, the session for acute coronary syndromes entitled "Eye on ACS Trials: Making the Right Choice" will be held at Room 104, Level 1, from 8:30 AM to 10:00 AM. In this session, there will be a debate over the benefits of "Multivessel PCI in STEMI" and "Pretreatment with $P2Y_{12}$ Inhibitors."

Multivessel PCI in STEMI

Dr. Wojciech Wojakowski (Medical University of Silesia, Poland), will discuss the first topic: "Complete PCI: Easy and Effective, Go for PRAMI and CVLPRIT Style!" He will do a brief review of the PRAMI and CVLPRIT trials to show the benefits of complete revascularization at the time of primary percutaneous coronary intervention (PCI) in ST-segment elevation acute myocardial infarction (STEMI) patients with multivessel disease (MVD). The PRAMI (Preventive Angioplasty in Acute Myocardial Infarction) trial randomized 465 STEMI patients with MVD to preventive PCI (revascularization of lesions >50% at index procedure) vs. culprit-only PCI. The composite outcomes of death, AMI, and refractory angina occurred in 21 patients in the preventive group and 53 patients in the culprit-only group ($p<0.001$) and cardiac death occurred in 4 and 10 patients, respectively ($p=0.07$), thus prompting the cessation of the trial at 23 months of follow-up. The CVLPRIT (Complete Versus culprit-Lesion only PRimary PCI Trial) enrolled 296 patients with STEMI and MVD and randomized to culprit-only or multivessel PCI (immediate or during same hospital stay). Complete revascularization translated into improved outcomes at 1-year follow-up (reduction of risk of death, reinfarction, heart failure, and ischemia-driven revascularization: 10% vs. 21.2%).

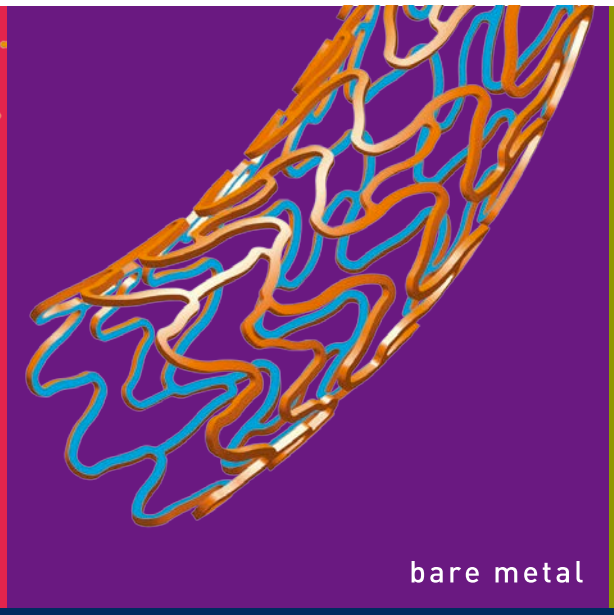
Dr. Barry D. Rutherford (Saint Luke's Mid America Heart Institute, USA), the second lecturer, will advise multivessel PCI as a staged procedure from his talk titled "Culprit-Only PCI: Safety First, Choose Wisely Until Definitive Trials!" He will also review the PRAMI and CVLPRIT trials, but emphasize the limitations of these trials. The PRAMI patients were a highly selected group as 2,428 patients were screened and 1,922 were deemed not eligible and only 465 (approximately 19%) were randomized. In CVLPRIT trials, there was no significant difference in mortality (1.3% vs. 4.1%) or recurrent MI (1.3% vs. 2.7%) for complete revascularization vs. culprit-only PCI. A review of these trials will result in the conclusion that in a very highly selected group of STEMI patients with MVD, complete revascularization at the index procedure may reduce adverse cardiovascular events.

Pretreatment with $P2Y_{12}$ Inhibitors

The second debate will be focused on the benefits or harms of pretreatment with new $P2Y_{12}$ inhibitors, ticagrelor, or prasugrel. Dr. Freek W.A. Verheugt (Onze Lieve Vrouwe Gasthuis, The Netherlands) will present results of the ATLANTIC trial to show safety of prehospital administration of ticagrelor in patients with STEMI. ATLANTIC randomized 1,862 patients (mean age 61 years; 20% women) with suspected STEMI and less than 6 hours of symptoms to receive in-ambulance (n=909) or in-hospital (n=953) ticagrelor (180 mg). All patients subsequently received ticagrelor 90 mg twice daily for 30 days with a recommendation of treatment through 12 months. The rate of the composite endpoint of death, MI, stroke, urgent coronary revascularization, or stent thrombosis was similar between the study groups. However, definite stent thrombosis was reduced in the in-ambulance group at both 24 hours ($p=0.008$) and 30 days ($p=0.02$). Non-CABG-related bleeding rates were low through 30 days, and no differences were observed among patients treated with pre- or in-hospital ticagrelor. Additionally, no bleeding rate differences were found among the 11.1% of patients who did not undergo revascularization or the 8.6% of patients who were not ultimately diagnosed with STEMI.

Dr. Roxana Mehran (Icahn School of Medicine at Mount Sinai, USA) will introduce the ACCOAST study, which compared pre-treatment with prasugrel 30 mg and an additional 30 mg prior to PCI with a regimen of prasugrel 60 mg prior to PCI after diagnostic angiography in 4,033 patients with NSTEMI. By 7 days, patients randomized to the pretreatment arm experienced no reduction in the risk of cardiovascular death, recurrent myocardial infarction, stroke, urgent revascularization, and bailout use of glycoprotein IIb/IIIa inhibition (hazard ratio 1.02, 95% CI 0.84-1.25, $p=0.81$), with no benefits emerging by 30 days. However, bleeding events using the TIMI major bleeding criteria were significantly increased among patients randomized to the pretreatment arm by 7 days (pretreatment 2.6% versus no pretreatment: 1.4%, hazard ratio: 1.90, 95% CI 1.19-3.02, $p=0.006$). The negative study results for prasugrel pretreatment raised a general question on the benefits achieved by pretreatment with new oral platelet inhibitors.

Thursday, April 30, 8:30 AM - 10:00 AM, Room 104, Level 1



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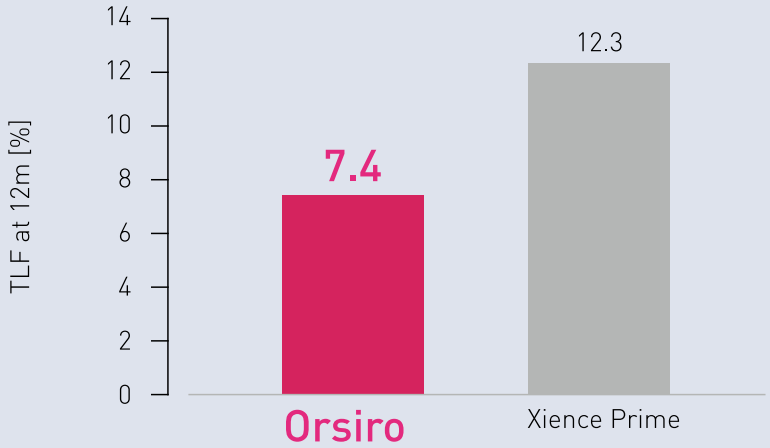

Study design: Prospective, multi-center, randomized, controlled trial comparing the Orsiro hybrid DES to Xience Prime. RVD < 2.75 mm. Target Lesion Failure rate out to 12 months. Orsiro: n = 168 / Xience Prime: n = 91. p-values not significant. No events of stent thrombosis were reported out to 12 months.
(Scientific presentation, M. Sabaté, EuroPCR 2014)

BIOFLOW-II
Small vessel subgroup

"The lower Target Lesion Failure rate in the small vessel cohort at 12 months may be a first indicator that Orsiro should be the primary option for PCI in small vessels."

Dr. Manel Sabaté,
Hospital Clínico y Provincial
de Barcelona, Spain

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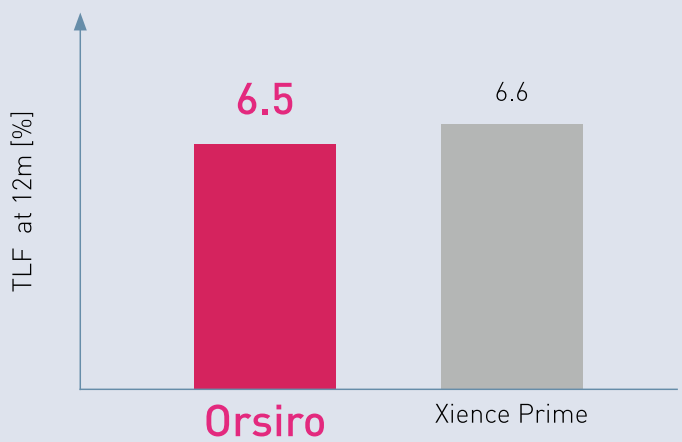

p-value for non-inferiority < 0.0004

Source: Pilgrim T. et al. Ultrathin strut biodegradable polymer sirolimus-eluting stent versus durable polymer everolimus-eluting stent for percutaneous coronary revascularisation (BIOSCIENCE): a randomised, single-blind, non-inferiority trial. **Lancet. 2014 Sept 1 (online)**

BIOSCIENCE

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Highlights from Yesterday

The Evolution of Interventional Cardiology: Past, Now, and Future Perspectives

Continued from page 1

streaming to Zurich to observe the technique. In 1980, I encouraged Gruentzig to move to America and join our laboratory at Emory University. With him, we developed teaching courses in interventional cardiology and trained the first cadre of practitioners using these techniques. This was the first stage of interventional cardiology.

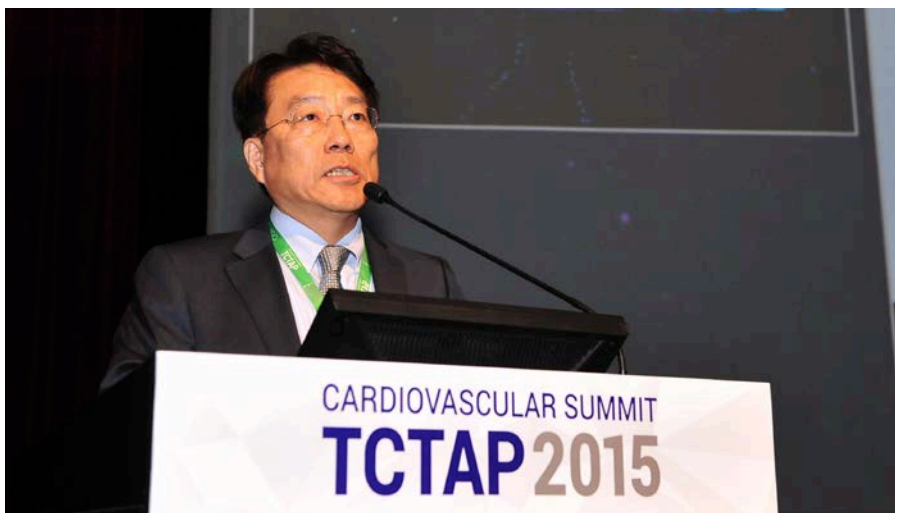
In the mid-1980s, the second stage coronary stenting was developed to address the major problem of balloon angioplasty, which was the acute occlusion of the vessel. The concept of vascular stenting had been mentioned as early as 1912 by Alexis Carrel, but the early pioneer stent development would be done by Ulrich Sigwart (the self-expanding stent), Julio Palmaz (the balloon expandable stent), and Cesare Gianturco (another balloon expandable stent which was investigated at our Emory University laboratory). These stents, although successful in solving the problem of acute closure of vessels, did not solve restenosis. This issue gave rise to the third stage of interventional cardiology - drug-eluting stents. Research in our laboratory on radiation therapy showed that inhibition of cell division could block the neointimal proliferation inherent in bare metal stents. Subsequently, agents to suppress cell division, such as sirolimus and paclitaxel, were coated onto stents and were successful in inhibiting the proliferative response. That third stage of interventional cardiology has continued to evolve with the development of new and improved stents, taking advantage of characteristics such as increased deliverability, lower profile strut design, different polymers, and different drug formulations with results that are gradually improving.

The fourth stage of coronary intervention has not fully matured. Stents with three components (metal, polymer, and drug) have been highly successful, but the dream has been to achieve the benefit of stents with no material left in the artery and restoration of more normal arterial function. This dream has in part been realized by the development of completely bioresorbable stents. The first generation of these stents has been tested against bare metal stents and shows significant promise, as well as a number of limitations. Those limitations are now being addressed by multiple companies pushing to improve the technology.

All of these coronary interventions are preambles to the area of interventional cardiology that is now the fastest growing intervention for structural heart disease. The development of transcutaneous aortic valve implantation is now well established for patients without surgical options and for patients with high surgical risk. This development has spurred investigation into replacing mitral valves, pulmonary valves, and even tricuspid valves. Closure of atrial septal defects and occlusion of left atrial appendage, as well as non-valvular solutions for mitral regurgitation and heart failure, have dramatically expanded the reach of interventional cardiology. To provide a forum for dissemination of new research in the field, a journal, *JACC: Cardiovascular Interventions,* was created eight years ago and I have had the honor of serving as its editor-in-chief. At present, the journal has the highest impact factor of any journal in the field and receives almost 75% of its submissions from outside the United States. South Korea currently ranks number six among all countries in submitted manuscripts to the journal. The future for interventional cardiology is certainly bright and although technologic advances drive this specialty, there are other considerations that will determine how broadly interventional cardiology is practiced in the future. These include the expansion of the availability and affordability of medical care and the potential to control atherosclerotic disease by medical means. The procedures of today may seem crude in the distant future. Will there be a possibility for correctly identifying vulnerable plaque that might be sealed, thereby preventing myocardial infarction? Will interventionally-delivered cells or other substances be able to regenerate damaged myocardium? These are dreams that remain to be realized. Others have not yet been dreamed.

Highlights from Yesterday: Opening Ceremony Events

What happens when TCTAP meets the 21st century laser laboratory?
The 3D holographic version of the TCTAP opening video was shown yesterday in the Main Arena. It was composed of presentations from TCTAP's 20-year history, congratulatory messages from key faculty, and TCTAP's vision for the next decades.



Congratulations on the 20th anniversary. Especially for Dr. SJ Park, he is one of my best friends and best teacher. And I'm always very honored to participate in this meeting every year. I know Dr. Park and other colleagues and the staff are working very hard to support this meeting. I was very surprised and honored to join you. Congratulations again.

Toshiya Muramatsu, MD
Saiseikai Yokohama City Eastern Hospital, Japan

I'd like to congratulate Dr. Park and the whole CVRF team on their amazing consistency; putting together such a terrific meeting like TCTAP year after year after year that shows continued growth in participants and faculty and the number of sessions. It's just one example of what a terrific job the group is doing. Congratulations.

William Fearon, MD
Stanford University Medical Center

I would like to congratulate the entire TCTAP team for what they've done for their anniversary. I think to me it's been absolutely wonderful and I'm very proud to have been asked to be a part of this. I think it's been a superb conference and I very much look forward to coming back.

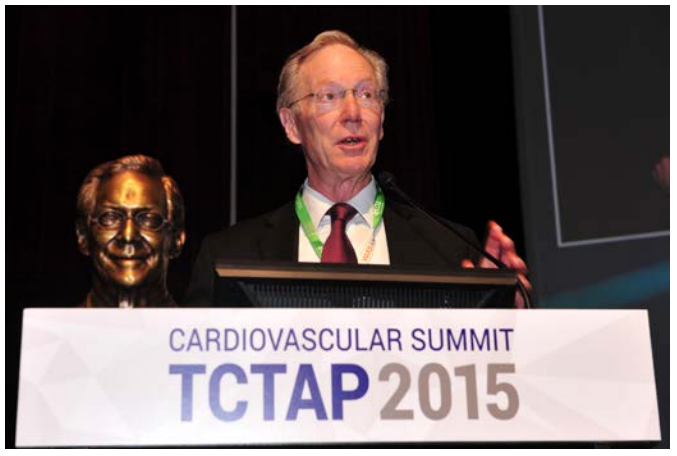
Neal Kleiman, MD
Houston Methodist DeBakey Heart and Vascular Center

I think we should celebrate all the people who have been organizing this meeting for so many years. And the start is Dr. Park. He's one of my colleagues and for whom I have the greatest admiration. And we should move to further meetings with more and more people participating in this meeting because it's the best way to get informed and to get trained in all the new technologies which are moving so fast in the field of interventional cardiology.

Alain Cribier, MD
Hospital Charles Nicolle

Highlights from Yesterday

Spencer B. King, III, MD, Awarded the 5th TCTAP Award 'Master of the Masters'



Dr. Spencer B. King, III, professor at the School of Medicine, Emory University Emeritus College, US, was recognized as the 5th recipient of the TCTAP 2015 Award 'Master of the Masters' held on Wednesday, April 29 at the Main Arena.

Since 2011, CardioVascular Summit-TCTAP has bestowed the "Master of the Masters" award upon one person out of the many outstanding teachers and dedicators who have made remarkable contributions to the field of interventional cardiology and to the growth of TCTAP. The organizing committee of TCTAP agreed unanimously to present this award to Dr. Spencer B. King, III, for his excellent expertise in this field and significant contributions to this meeting as a member of the advisory committee.

Dr. King is well known as a world leader who has shepherded the development of interventional cardiology. Since starting his cardiology career at Emory University, he has developed a multi-purpose technique for coronary arteriography with Fred Schoonmaker and helped facilitate his partner's, Andreas Gruentzig, career by refining angioplasty, establishing a large database, publishing multi-center clinical trials, and mounting courses that included live televised case demonstrations. He also has been principle the investigator of 15 national and international trials, including the first NIH-sponsored trial that compared angioplasty with bypass surgery. In addition, Dr. King is a passionate researcher and author of over 500 papers. Through this unremitting endeavor and his profound insight, he has continued his commitment as the editor-in-chief of *JACC: Cardiovascular Interventions*.

His old colleague, Dr. David Holmes, said, "He is a great individual and a tireless worker in the field of interventional cardiology, education, science, and in the field of research." As a vigorous leader and teacher, Dr. King will continue his journey for growth in the field of interventional cardiology, a field of rapid advances and technical innovations.

Wednesday, April 29, 10:00 AM - 10:15 AM, Main Arena, Level 3

Highlights from Yesterday: Wrap-up Interview

BVS (Bioresorbable Vascular Scaffold) for Coronary Artery Disease

Can BVS replace the metal stent?

Moderator : Patrick W. Serruys
Interviewees : Bernard Chevalier, Corrado Tamburino, Renu Virmani

The perfect coronary stent is one that is easily put in, provides good flow, and can be maintained for forever without other concerns. The image that comes to mind when one thinks about the bioresorbable vascular scaffold (BVS) is a system that dose its job and disappears. There would be no need for lifelong dual antiplatelet drugs, remodeling of the vessel would not be inhibited by a metal cage, and normal vasomotion might be restored. With no metal left in the vessel, should the time come for a bypass surgery, there would be no interference with the bypass graft implant.

The ABSORB II trial showed that the acute lumen gain was significantly smaller among coronary artery disease patients who received an everolimus-eluting BVS compared with those who received an everolimus-eluting metallic stent (EES). The difference in acute gain was not related to the acute recoil immediately after the stent was implanted, but Dr. Patrick Serruys suspected it might be related to the use of smaller balloons at lower pressure for deployment and dilatation of the bioabsorbable scaffold. Still, despite the significant but modest difference in the acute performance between the two stents, clinical outcomes and angina status were equivalent between the Absorb and EES.

According to the EVERBIO II study, angiographic in-stent late lumen loss at nine months did not differ significantly between BVS (0.28 mm) and EES/Biolimus-eluting stent (BES) (0.25 mm). This study was designed to show the superiority of metallic stents over the Absorb BVS at nine months, but the superiority of metallic drug-eluting stents was not found. Results did not differ between diabetics and nondiabetics, between patients with or without acute coronary syndrome (ACS), or between complex and simple lesions. Device-oriented and patient-oriented major adverse coronary events (MACE) did not differ between the groups, and both clinically driven target lesion revascularization (TLR) and target vessel revascularization (TVR) rates were similar for BVS (8% and 10%, respectively) and EES/BES (6% and 8%, respectively). As this study did not address whether the bioabsorbable polymer in BES or the bioresorbable vascular scaffold reduced thrombotic risk, long-term benefit requires further investigation.

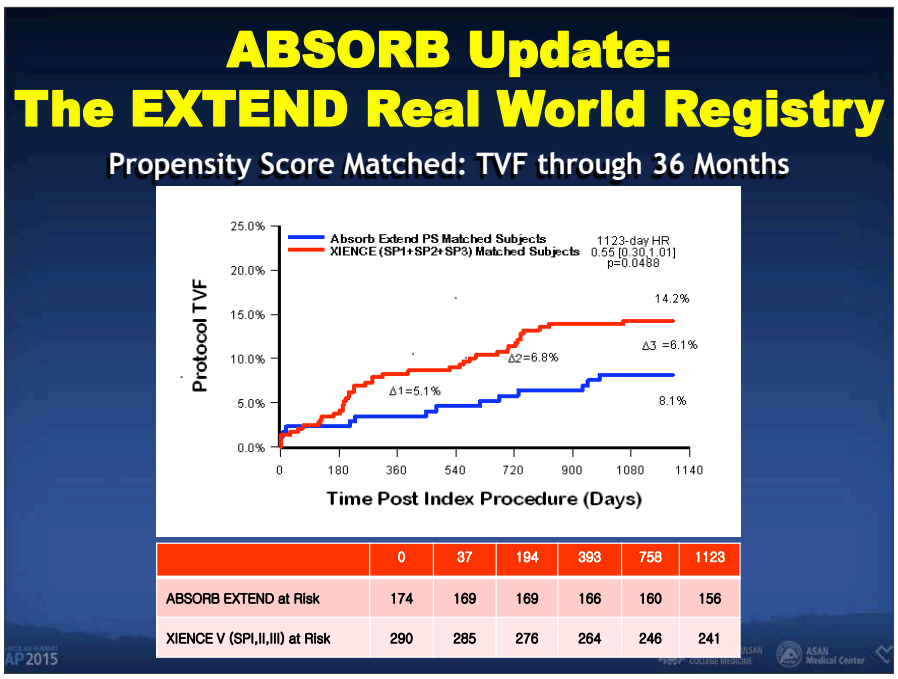


Figure 1.

The results of the TROFI-II trial, which will be presented this year, will also provide important data on the healing process between BVS and everolimus-eluting metallic stent in STEMI patients by optical coherence tomography.

All the panelists agreed that the results of the present studies are reassuring that the radiolucent BVS technology may be a step in the right direction. However, we should wait for a long-term follow-up of BVS-treated patients before drawing definite conclusions about the performance of the device.

Wednesday, April 29, 8:40 AM - 9:10 AM

Dual Antiplatelet Therapy for Coronary Artery Disease

The perfect regimen of DAPT?

Moderator : Gregg W. Stone
Interviewees : David J. Cohen, Manesh Patel, Freek W. A. Verheugt

Recently, several clinical trials comparing the shorter duration of DAPT with the longer duration showed conflicting information. The two European studies, ISAR-SAFE and ITALIC/ITALIC+, looked at shorter duration of therapy (6 months vs. 12 months or 24 months). The idea of shorter duration of therapy is to hopefully see a better safety profile. However, both studies were unable to show a reduction of major bleeding. So, when we shorten the duration of treatment compared with 12 months, it is clear that we are going to have fewer bleeding complications. From the DAPT study, compared with stopping dual antiplatelet therapy at 12 months, extending therapy to 30 months reduced the risk of stent thrombosis and myocardial infarction (MI) but also increased the risk of mild to moderate bleeding regardless of whether it followed an initial MI or stable angina. If we are looking for the event at 30 months vs. 12 months, we will have an ischemic benefit, but we need to remember that patients who bled during the first year that had stent thrombosis, myocardial infarction, or stroke were excluded.

Besides the duration issue, there are questions remaining about DAPT when it comes to the patient. In a patient who doesn't have an interventional reason for long-term DAPT (such as left main or bifurcation stenting), but who has a heavy atherosclerotic burden - for example, multi-vessel disease or peripheral arterial disease or cerebrovascular disease - using DAPT seems to make sense; not using a DAPT for stent thrombosis, but using it for the long-term secondary prevention. From the DAPT study and other studies such as CHARISMA, results showed that patients with extensive atherosclerotic burden benefitted from DAPT, as well as patients with a previous myocardial infarction. In the TRA 2°P-TIMI 50 or even TRILOGY study with prasugrel, we can see the curve diverging over time with secondary prevention when using a longer treatment with double therapy. We need to understand better which patients benefit from longer treatment with the two agents, but clearly, extensive coronary disease, peripheral arterial disease, previous events anywhere in the vascular bed, or previous myocardial infarction are probably good indicators.

This year, PEGASUS was presented to determine whether long-term dual antiplatelet therapy with low-dose aspirin and ticagrelor (90 mg bid vs. 60 mg bid) should be considered appropriate in patients with a history of MI. Both doses of ticagrelor, each compared with placebo, significantly reduced the risk for cardiovascular death, MI, or stroke with a 15% reduction with the 90 mg dose and a 16% reduction with the 60 mg dose. In the control arm, the event rate was about 9% over the course of 3 years; a 15% or 16% reduction resulted in event rates that were around 7.5% in the two ticagrelor arms. While current guidelines suggest that ticagrelor should only be used for the first year after an acute coronary event and only in select patients, these data suggest that the benefits, at least for low-dose use, may extend beyond that period. Although fatal bleeding and nonfatal intracranial hemorrhage occurred in less than 1% of patients in each of the study groups, patients with recent bleeding, prior stroke, or the need for an anticoagulant were excluded, so the safety data should not be generalized to those high-risk populations.

We know now from both PEGASUS-TIMI 54 as well as the DAPT trial that there is a consistent message that a more prolonged, more intensive antiplatelet therapy reduces ischemic events. But we should seek evidence of diverse DAPT regimens for each patient.

Wednesday, April 29, 10:00 AM - 10:30 AM

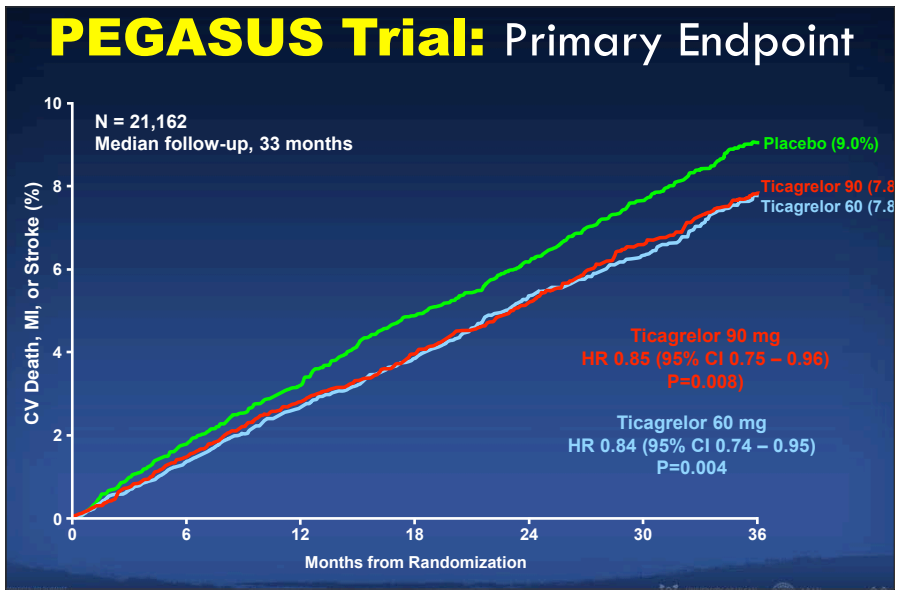


Figure 1.

7th Chien Foundation Award Presented to Dr. Gary S. Mintz

Gary S. Mintz, MD
Cardiovascular Research Foundation

Dr. Gary S. Mintz was selected for the 7th Chien Foundation Award for Outstanding Lectureship & Lifetime Achievement in PCI at TCTAP 2015.

The presentation of this honored award will take place on April 30 (Thu.) at the Grand Ballroom 104, Level 1 at 12:30 PM.

Gary S. Mintz, MD, is chief medical officer of the Cardiovascular Research Foundation, editor-in-chief of TCTMD.com, and the managing co-director of Transcatheter Cardiovascular Therapeutics (TCT). Dr. Mintz has extensive experience in both interventional cardiology and cardiovascular imaging, and in particular intravascular imaging and physiology. He joined the Cardiovascular Research Foundation in 1991 as director of the Coronary Ultrasound Program that has made fundamental observations about the pathology, pathogenesis, and mechanisms of coronary atherosclerosis, catheter-based interventions, and restenosis.

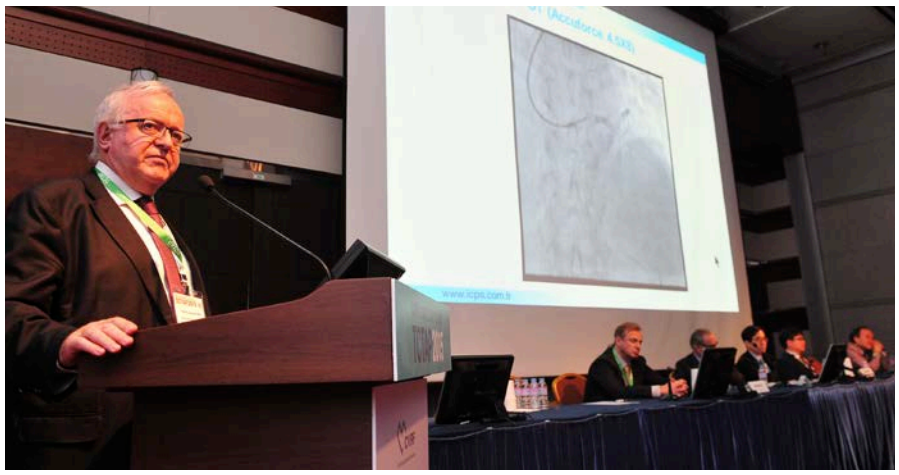
He is the author of more than 800 articles and book chapters as well as 700 abstracts concerning various aspects of clinical cardiology, cardiac ultrasound, hemodynamics, cardiac radiology and coronary arteriography, interventional cardiology, and intravascular imaging and physiology. In 2005, Dr. Mintz published the single-authored textbook *Intracoronary Ultrasound,* the definitive work in the field. In 2014, he was awarded the "Master of the Masters" career achievement award in Seoul, Korea. Dr. Mintz completed his undergraduate education at the University of Pennsylvania in 1970 and received his medical degree from Hahnemann University in 1974, both universities are located in Philadelphia, PA. He finished his internship in 1975, residency in 1976, and cardiology fellowship in 1978, all at Hahnemann University. He joined the Hahnemann University Department of Medicine faculty (with a joint appointment in the Department of Diagnostic Radiology) in 1978 and was ultimately promoted to professor of medicine in 1987. His administrative appointments there included director of the Cardiac Ultrasound Laboratory, director of the Coronary Care Unit, and director of the Cardiology Fellowship Training Program. He received teaching awards from both the Department of Medicine Residency and Cardiology Fellowship Training Programs.

Thursday, April 30, 12:30 PM - 12:35 PM, Room 104, Level 1

NEW *Learn from masters' daily practice!*

Masters' Video Live Session: Case-Based Learning

Yesterday afternoon, the 'Master's Video Live Session' was held in Room 105. The 'Master's Video Live Session,' which was held for the first time this year, is where highly experienced interventional cardiologists can share the latest knowledge and know-how, as well as show complex coronary lesions or transcatheter valve therapeutics cases. Yesterday, Dr. Yaron Almagor and Dr. Hyo-Soo Kim modulated heated discussions on cases of syntax score, left main, chronic total occlusion, and coronary artery obstruction after transaortic valve implantation. Today, a discussion on a complex coronary lesion case is planned in Room 104 from 3:30 PM to 4:45 PM, and a discussion on a transcatheter valve therapeutics case will be held from 4:45 PM to 6:00 PM. In particular, the latter session with the transcatheter valve therapeutics case is expected to be very interesting as there will be many cases about new valves and interventions.



Let's Move on the Waves!

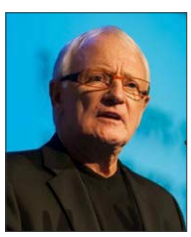
Expanding the Indications of Transcatheter Aortic Valve Replacement

Alain G. Cribier, MD
Hospital Charles Nicolle

Current indications of TAVR were specified in the European and US Guidelines in 2012 and 2014, respectively; TAVR can be performed in patients with severe AS without surgical option. Until now, more than 200,000 patients received TAVR and have been implanted in equal numbers. FDA approval was obtained for high-risk patients in both valves, the Edwards and the CoreValve; however, there is a movement to widen the indications of TAVR. Where are we today and what is the future of TAVR? Dr. Alain Cribier answered these questions.

Expansion of clinical indications and further growth of the procedure can be anticipated in the not so distant future. Advances in four areas will determine this projection: improved safety profile, application in lower risk patients, assessment of device durability on long term, and decreased costs. The Sapien 3 valve, which requires smaller 14 F/16 F introducers, makes the simpler/safer transfemoral approach available in 85% of cases and have already favorably impacted the incidence of the three leading and potentially life threatening complications of lower risk patients: stroke, paravalvular leak (PVL), and vascular complications. Several hundred patients have already been included in the Valve-In-Valve registry in which TAVR has been demonstrated to be clinically efficient for the treatment of degenerated bioprosthesis; TAVR can be a fancy option for redo operation. New types of valves (Jena, Accurate, and Helio Sapien) are currently being investigated for the treatment of pure aortic insufficiency with promising results. In this regard, the "minimalist strategy" for TAVR (local anesthesia, pre-closing techniques, and early patient discharge) for wider indications, an increasingly accepted and safe approach, will be the future of TAVR.

Ultimate Comparison: Sapien vs. CoreValve



Eberhard Grube, MD
University Hospital Bonn

Last year the Medtronic CoreValve High-Risk study showed that a transcatheter device was superior to surgery in high-risk subjects for the first time. However the PARTNER A, the parallel trial for the Edwards Sapien device in a similar cohort of patients, showed no such mortality benefit. Beyond the trials themselves, physicians want to know which device is better in clinical practice.

A small head-to-head comparison trial, the CHOICE trial, is offering a glimpse at the answer. The CHOICE randomized trial was not looking at hard clinical outcomes, but instead focused on "device success." This meant successful vascular access, deployment of the device, and retrieval of the delivery system as well as correct positioning of the device and performance of the heart valve without moderate or severe regurgitation. In all, 241 patients were randomized to treatment with either the self-expandable CoreValve or the balloon-expandable Sapien XT at five German centers. Device success was achieved in 95.9% of patients who received the Sapien XT and in 77.5% of patients who received the CoreValve (relative risk, 1.24; 95% CI, 1.12-1.37; $p<0.001$). The key driver of this difference was moderate or severe valvular regurgitation, seen in 4.1% of Sapien-treated patients compared with 18.3% of CoreValve patients ($p<0.001$). As a result, need for a valve-in-valve procedure to improve on initial results was also more common in the CoreValve-treated patients, at 5.8% vs 0.8% ($p=0.03$). However, there was no significant difference in cardiovascular mortality at 30 days, bleeding and vascular complications, or in a combined safety endpoint. Therefore, physicians should not interpret the device success as a surrogate for long-term outcomes such as death, stroke, and quality of life. Long-term follow-up of the CHOICE population should be awaited to determine whether differences in device success will translate into a clinically relevant overall benefit for the balloon-expandable valve.

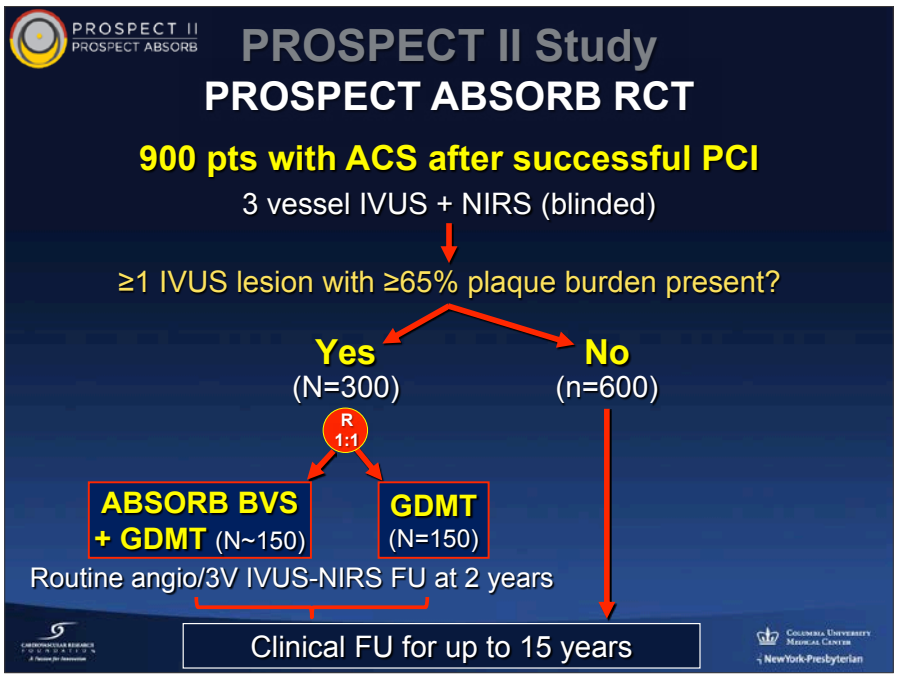


Figure 1.

Vulnerable Plaque Detection and Treatment: PROSPECT II and PROSPECT ABSORB

Data from the original PROSPECT trial demonstrated that vulnerable plaques that are most likely to cause sudden unexpected adverse cardiac events can be identified through imaging techniques before the adverse events occur. Those findings have helped physicians to consider certain lesions as high risk of future adverse cardiovascular events. As near infrared spectroscopy (NIRS) has been extremely well validated for detecting lipids, which is the core of most vulnerable plaques, PROSPECT II will determine the ability of NIRS to identify these high risk lesions in an adequately powered prospective study. The PROSPECT II study will enroll 900 patients and the investigators will use the InfraReDx TVC imaging system to identify vulnerable plaques in the coronary arteries and follow patients for at least 3 years to detect the occurrence of coronary events. In addition, data from the PROSPECT ABSORB substudy will be analyzed in patients with and without a cholesterol signal at the site of large plaque. In this substudy, 300 patients with IVUS defined bulky plaques, which have been shown to be at high risk for causing future adverse events in the first PROSPECT study, will be randomly assigned to treatment with bioresorbable vascular scaffold or guideline directed medical therapy (GDMT). If this investigation proves the hypotheses that NIRS can identify the vulnerable plaques and that preemptive treatment of the most dangerous plaques with PCI can prevent the event, it will change the treatment pattern for the patients with coronary artery disease.

Gregg W. Stone, MD
Columbia University Medical Center / Cardiovascular Research Foundation

How to Treat? Functionally Insignificant Vulnerable Plaque: STABLE and PREVENT

Seung-Jung Park, MD
Asan Medical Center

Since FFR became popular, functionally insignificant lesions were deferred more for optimal medical treatment (OMT) and showed excellent prognosis. Meanwhile, based on the PROSPECT trial, even among the non-culprit lesions so called vulnerable plaque features showed significantly higher event rates similar to culprit lesions. Then there comes the question of whether we should treat functionally insignificant vulnerable plaque. Recently our study, the Statin and Atheroma Vulnerability Evaluation (STABLE) trial, has just been completed and demonstrated that rosuvastatin treatment stabilized lesion-specific, local plaque vulnerability (decrease in % NC and frequency of VH- and OCT-TCFAs) and also decreased plaque volume in non-culprit coronary lesions. However, as there were no significant differences in the primary endpoint between rosuvastatin 40 mg vs. 10 mg, there seems to be no dose dependent plaque regression which may imply limitations of optimal medical treatment (OMT). In recent years, bioabsorbable vascular scaffold (BVS) has shown mind blowing results on long-term vascular healing. The PREVENT trial is focusing on the question of whether BVS can stabilize

Continued on next page

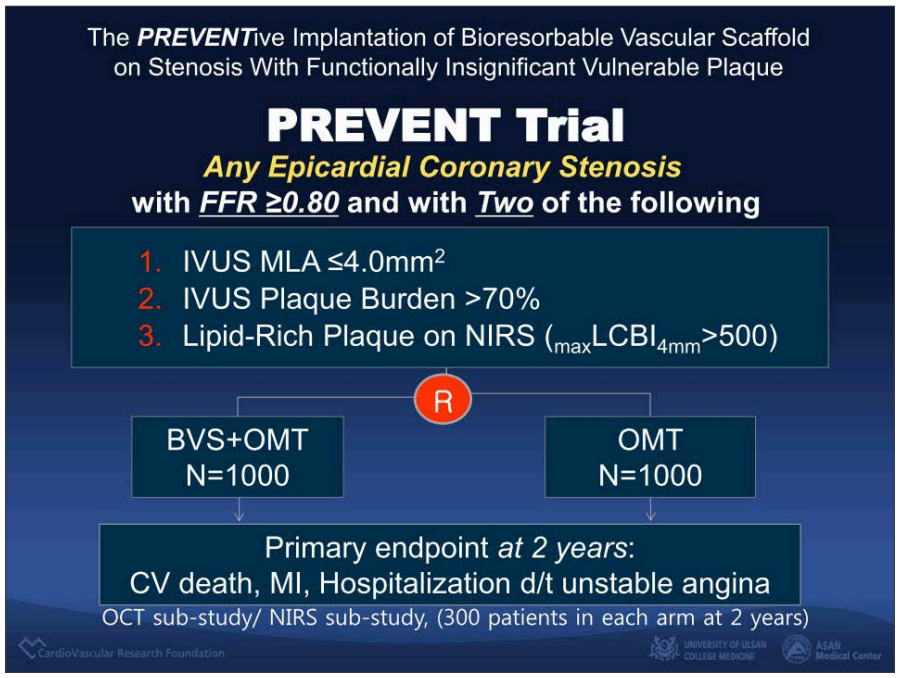


Figure 2.

plaque vulnerability and induce plaque regression, which may prevent future events of deferred lesions. The results may change the treatment paradigm of coronary artery disease.

How Long for DAPT? Six Months is Enough!

David J. Cohen, MD
Saint Luke's Mid America Heart Institute

For patients treated with current generation DES, evidence would suggest that a 3-6 month period of DAPT is "mandatory" for avoidance of the most severe and prognostically important stent-related complications. Although it is clear that longer-term DAPT can prevent additional stent thrombosis events (as well as non-stent related events), there is a definite price to be paid for these benefits in terms of increased bleeding. Given the importance of late bleeding events in terms of cost, QOL, and potentially long-term mortality as well as the lack of definitive survival benefit with more prolonged DAPT, it makes sense to individualize the duration of DAPT beyond 6 months - taking into account factors such as extent of CAD and vascular disease, as well as long-term bleeding risk. The issue should be regarded as two separate questions: short-term treatment after stenting to prevent stent thrombosis and long-term treatment of patients with native coronary heart disease.

More Than 12 Months!

Cheol Whan Lee, MD
Asan Medical Center

Based on the DAPT trial, dual antiplatelet therapy beyond 1 year after placement of a DES, as compared with aspirin therapy alone, significantly reduced the risks of stent thrombosis and major adverse cardiovascular and cerebrovascular events (MACCE), but was associated with an increased risk of bleeding. The PEGASUS trial, comparing ticagrelor 90 mg twice daily, ticagrelor 60 mg twice daily, or matching placebo, all with low-dose aspirin, demonstrated that treatment with ticagrelor significantly reduced the risk of MACCE and did not increase the risk of fatal major bleeding. These two big trials, which both showed the benefit of dual antiplatelet therapy, continued to accrue over time. There still remains the question about how long dual therapy should be continued. So far, the ongoing risks and benefits would have to be considered carefully in balancing the ischemic vs. bleeding risk for each individual patient.

Thursday, April 30, 8:30 AM - 12:30 PM / 2:00 PM - 6:00 PM, Coronary Theater, Level 1

Abdominal Aortic Aneurysm or Dissection Intervention

The workshop for the 'Abdominal Aortic Aneurysm or Dissection Intervention' will be held at the Endovascular & Structural Heart Theater, Level 1, from 8:30 AM to 9:30 AM. Dr. Jong-Min Song (Asan Medical Center, University of Ulsan, Korea), will discuss the first topic: "Natural History of Aortic Dissection: Optimal Candidate for TEVAR." He will do an in-depth review of the natural history of distal aortic dissection and how the recent introduction of TEVAR for type B aortic dissection improved clinical outcomes compared to medical therapy only. The third lecturer, Dr. Han Cheol Lee (Pusan National University Hospital, Korea), will guide the audience on endovascular treatment in patients with complicated type B aortic dissection and malfunction syndrome. Dr. Richard R. Heuser (St. Luke's Medical Center, University of Arizona, USA) will give a talk on how to prevent and manage endoleaks, especially from a practical view point.

Finally, Dr. Kishore Sieunarine (Royal Perth Hospital, Australia) will give a lecture titled "Fenestrated EVAR: A stepwise approach from imaging to intervention." Inadequate proximal necks especially limit the use of endovascular approaches in up to 40%

of patients. In these patients, stent graft designed with fenestration and/or scallops provide a means to incorporate segments of the visceral arteries into the proximal sealing zone. Single-center reports, multi-center registries, and systemic reviews indicate that the technique is reproducible with a rate of high technical success, low morbidity, and low mortality. However, some of the perioperative measures should be considered especially during the learning phase. This session deals with how to prepare perioperative measures and device implantation procedures such as multi-sheath femoral access, device orientation and deployment, fenestration and sheath advancement, deployment and retrieval of the top cap, and additional balloon dilatation at the neck and the attachment site. Don't hesitate to join this session if you are interested.

Endovascular Symposium, Thursday, April 30, 8:30 AM - 9:30 AM, Endovascular & Structural Heart Theater, Level 1

Advanced Techniques for Stroke Prevention Laid Bare During Carotid Artery Stenting Course

Carotid artery stenting (CAS) with temporary brain protection has rapidly grown as an alternative to surgical carotid endarterectomy in recent years. This progress is mainly due to the less invasive nature of endovascular approach but also because of rapid improvement in procedure technique and development of new stents and neuroprotection systems. An overview of carotid intervention will be shared with attendees this morning as part of an endovascular symposium that explores new and best treatment strategies for stroke prevention during carotid artery stenting.

New Treatment Strategy for Stroke Prevention During Carotid Artery Stenting

"Last year brought another breakthrough solution to improve the performance of carotid stenting. This applies to new WIRION filter from Gardia Medical Ltd. which enables the physician to use any 0.014 in coronary guide wire," Dr. Piotr Pieniazek (Jagiellonian University, John Paul II Hospital Krakow, Poland) described to TCTAP today ahead of this talk. "Another unique feature is the filter removal system ending with a conic soft tip that facilitates smooth and easy advancing retriever across the implanted stent. The WIRION filter simplifies the procedure since passage, even through tight lesions with coronary guidewire, is safe and atraumatic. Moreover, removing the system after CAS procedure, even in tortuous and calcified vessels, does not cause any problems."

Dr. Piotr Pieniazek plans to show newer stent technology with Roadsaver micromesh double braded stent from Terumo Corporation, which has the smallest free cell area of 0.38 mm^2. He noted that "Roadsaver" is an extremely flexible 5F stent dedicated for direct stenting technique. It should be preferentially used in patients with high-risk stenosis including long, lipid-rich, thrombus, and aneurysm containing lesions. The stent should be also recommended for patients after radiation therapy of the neck - this condition makes carotid plaque prone to late embolization. From Dr. Pieniazek's point of view, based on the 2400 CAS procedures performed in his institution, the use of Roadsaver stent together with proximal brain protection (Mo.Ma system) is the best and safest treatment strategy for stroke prevention during CAS procedures in 2015."

Dr. Pieniazek will also introduce the techniques to reduce periprocedural embolization while performing innominate artery stenting by dual carotid and vertebral artery protection. The last issue he wants to address is a one-day hybrid CAS + CABG procedure in patients with severe coronary and carotid artery atherosclerosis.

"The ongoing progress in the carotid artery stenting field lets us look into the future with optimism," Dr. Pieniazek noted in his conclusion. "We believe that endovascular treatment with the use of micromesh designed stents and proximal neuroprotection systems can be offered as the safest solution for all patients including octogenarians."

Proximal and Distal Protection for Carotid Intervention: No Room for CEA

Also speaking during this session will be Dr. Robert Bersin (Swedish Heart and Vascular Institute, Seattle, WA, USA) who will discuss proximal and distal protection for carotid intervention. "Clinical factors that increase stroke risk with CAS include: clinical high risk features, arch anatomy, lesion ulceration, symptomatic status, and patient age. Technical factors that increase stroke risk with CAS include: lack of use of a protection device, pre-dilation prior to protection, and use of multiple stents," he explained.

When discussing how to reduce periprocedural events he added: "Operator experience matters, and the use of closed cell stents and proximal protection reduce the risk of stroke in symptomatic patients to that of asymptomatic patients."

Endovascular Symposium, Thursday, April 30, 10:30 AM - 11:30 AM, Endovascular & Structural Heart Theater, Level 1

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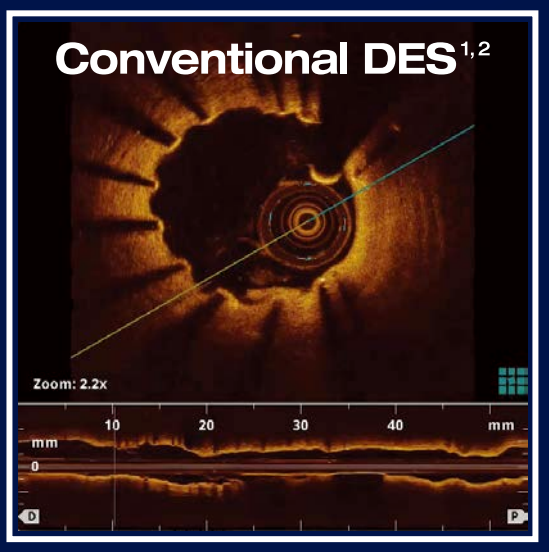

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[1] 2-year follow up OCT images from EGO-COMBO Study, Prof. S. WL Lee, TCT 2013

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OrbusNeich Symposium April 30th

Room 104
Level 1
12:45

How can we simplify complex PCI?

Moderator(s): Seung Jung Park, Roxana Mehran

Panelists: Houng Bang Liew, Kam Tim Chan

- How do I manage my most complex CTO? — Satoru Sumitsuji
- Does lesion preparation matter? — Kentaro Jujo
- Does true vessel healing matter? — Roxana Mehran

G-70-0404

Visit our booth at E007

After the first human report in 2002, transcatheter aortic valve replacement (TAVR) has been incorporated into the treatment strategy for high-risk and inoperable patients with aortic valve stenosis (AS). Until now, more than 100,000 patients have been treated with TAVR worldwide. The Placement of Aortic Transcatheter Valves (PARTNER) trial established the evidence of this less-invasive treatment as a standard therapy for these "ignored" patients. Furthermore, the US CoreValve trial showed the superiority of TAVR compared to surgical aortic valve replacement in high-risk patients. German Aortic Valve Registry (GARY), UK TAVI registry, Italian CoreValve registry, and other registries demonstrated the safety and efficacy for TAVR in real-world practice. Despite a growing body of evidence regarding the clinical outcomes of TAVR, there has been limited data on clinical outcomes of TAVR in the Asia Pacific region.

The Asian TAVR Registry

To address the limited data on TAVR in the Asia Pacific region, the Asian TAVR registry was established. From February 2009 to April 2015, 874 patients from 12 TAVR centers in 6 countries (Australia, Hong Kong, Japan, Korea, Singapore, and Taiwan) were included. In the Asia Pacific region, TAVR has been utilized in patients with AS estimated as low-, intermediate- and high-risk (mean STS score: 7.0±5.6). Overall 30-day and 6-month mortality were 3.4% and 7.1%, respectively. Overall all-cause mortality at 1 year and 2 years were 10.6% and 14.5%, respectively. All-cause mortality at 1 year for patients with high-, intermediate- and low-risk patients (STS score >8, 3-8, <3, respectively) were 18.8%, 8.4%, and 5.8%. There were no differences in complications such as all-stroke, life-threatening bleeding, AKI (stage 2-3), major vascular complications, and safety endpoints between SAPIEN/XT and CoreValve prosthesis. 30-day mortality decreased from 5.1% before 2012 to 3.0% in 2014. Considering the expanding indications into the lower risk population, cautious patient screening, optimal treatment strategy, and new generation devices are required to obtain comparable outcomes to SAVR.

TAVR for Bicuspid Aortic Valve Stenosis

Bicuspid aortic valve stenosis is the most common congenital anomaly. Most patients with bicuspid aortic valve require surgical aortic valve replacement before turning 70 years old. Interestingly, a recent study examining surgically excised aortic valves observed that one-fifth of patients over the age of 80 had underlying bicuspid pathology. Due to the potential risk of underexpansion of the transcatheter valve, bicuspid aortic valve stenosis has been excluded from the landmark clinical trials (PARTNER trial and US CoreValve trial). However, a recent study reported feasible clinical outcomes of TAVR for bicuspid aortic valve stenosis with relatively higher incidence of paravalvular aortic regurgitation in bicuspid aortic valve compared to tricuspid aortic valve. Bicuspid aortic valve has several anatomic features such as asymmetry of orifice, presence of raphe, heavily calcified valve leaflet, and commissure fusion. Those anatomic features have been considered to affect adverse outcomes, especially in post-TAVR aortic regurgitation and prosthetic valve dysfunction. Several studies described the anatomic differences between bicuspid and tricuspid aortic valve. Feasibility of TAVR in bicuspid aortic valve has been limited in demonstrating the anatomical difference and its association with adverse outcomes. Although current guidelines recommend performing TAVR in patients considered inoperable or at high-risk for SAVR, recent evidence suggests that patient selection criteria for TAVR are evolving away from the pre-market inclusion and exclusion criteria. Recently, Mylotte, *et al.* described the clinical outcomes of TAVR in bicuspid aortic valve stenosis. A total of 139 patients with bicuspid aortic valve underwent TAVR (SAPIEN/XT, n=48; CoreValve, n=91). Patient mean age and STS score were 78.0±8.9 years and 4.9±3.4%. Paravalvular aortic regurgitation grade ≥ mild and moderate occurred 28.4% and 6.0%, respectively. Mortality at 30 days and 1 year were 5.0% and 17.5%. There were no differences in paravalvular aortic regurgitation (≥ mild), procedural outcomes, and 1-year mortality between SAPIEN and CoreValve. Further study is required to evaluate the comparative effectiveness of SAPIEN and CoreValve in patients with bicuspid aortic valve stenosis.

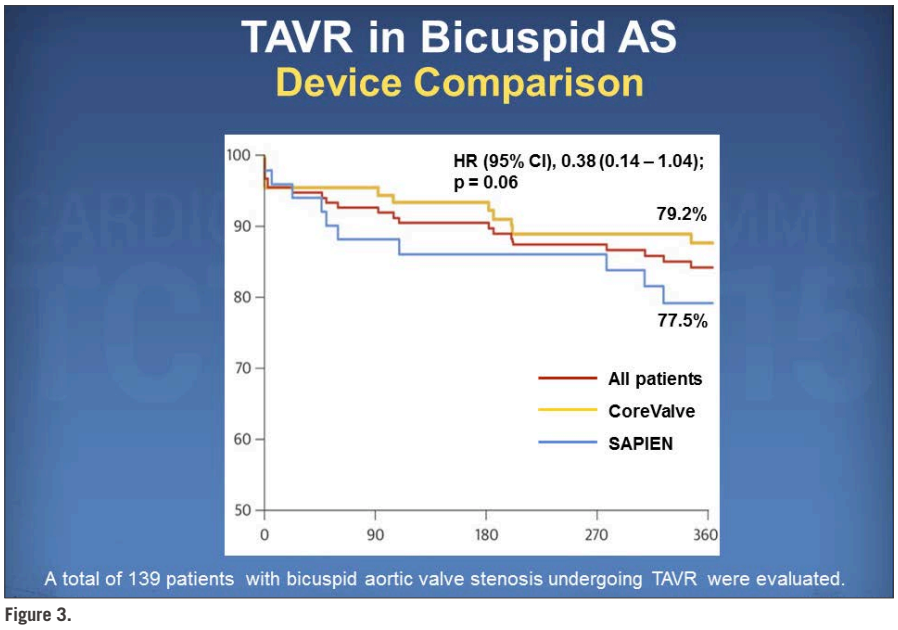

Figure 3.

Current Status of Transcatheter Therapy for Mitral Regurgitation

Transcatheter-based techniques for the treatment of significant mitral regurgitation (MR) have evolved tremendously in the past decade. Among all catheter-based mitral therapies, the leaflet repair MitraClip system to date has the largest clinical ex-

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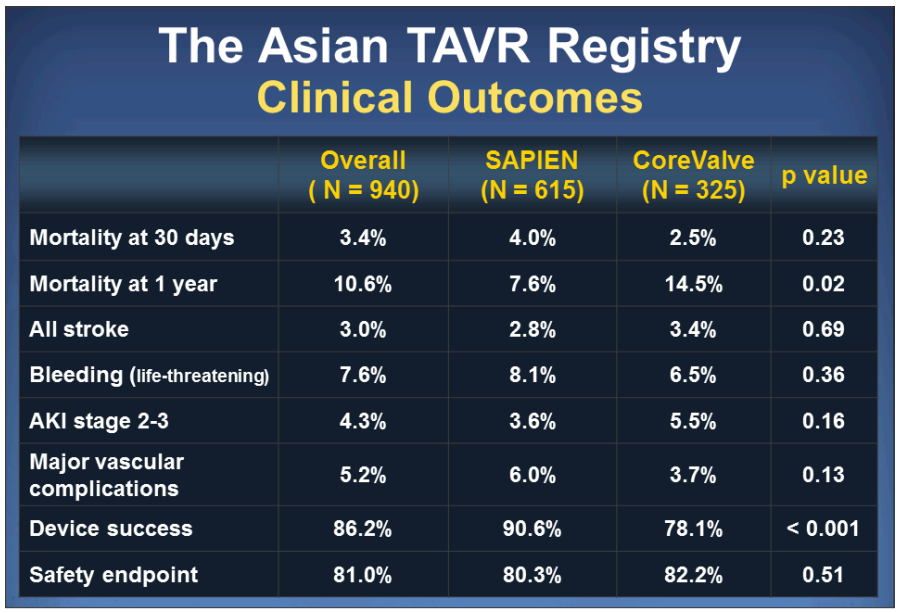
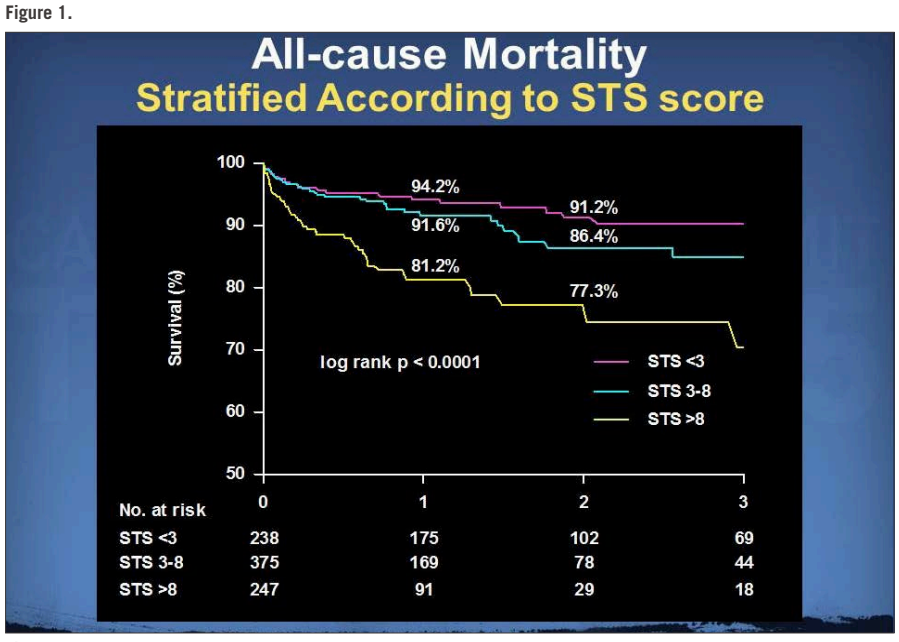


	Overall (N = 940)	SAPIEN (N = 615)	CoreValve (N = 325)	p value
Mortality at 30 days	3.4%	4.0%	2.5%	0.23
Mortality at 1 year	10.6%	7.6%	14.5%	0.02
All stroke	3.0%	2.8%	3.4%	0.69
Bleeding (life-threatening)	7.6%	8.1%	6.5%	0.36
AKI stage 2-3	4.3%	3.6%	5.5%	0.16
Major vascular complications	5.2%	6.0%	3.7%	0.13
Device success	86.2%	90.6%	78.1%	< 0.001
Safety endpoint	81.0%	80.3%	82.2%	0.51

Figure 1.



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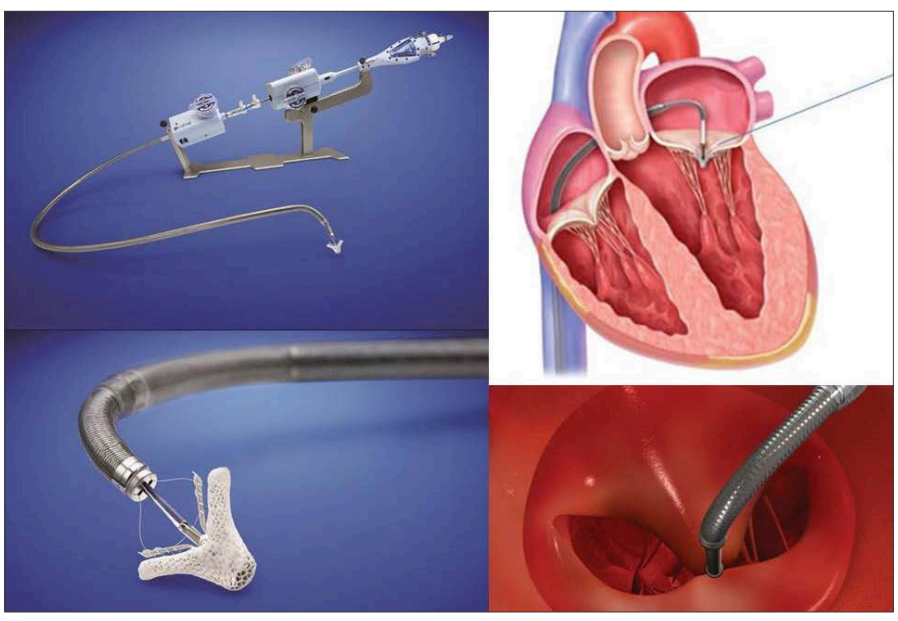
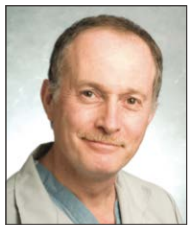


Figure 4.



Ted Feldman, MD
Evanston Hospital

perience of more than 20,000 patients worldwide with established and reproducible safety profile and effective reduction of MR. It also shows improvement of symptoms and quality of life in high-risk surgical patients. In the EVEREST II (Endovascular Valve Edge-to-Edge Repair) study, 279 patients were randomized in 2:1 ratio to undergo percutaneous repair with MitraClip (n=184) or conventional MV repair or replacement surgery (n=95). In the intention-to-treat analysis, the rates of death (6%) were similar for MitraClip and surgery at 1 year. The frequency of 2+ MR was significantly higher after MitraClip, but the proportion of patients with grade 3+ or 4+ MR was not significantly different between the 2 groups at 2 years follow-up (20% percutaneous group vs. 22% surgical group). The combined primary efficacy endpoint of freedom from death, from surgery for mitral valve dysfunction, and from grade 3+ or 4+ MR was 55% in the percutaneous-repair group and 73% in the surgery group (p=0.007). 5-year outcomes of the EVEREST II randomized trial showed that there were no differences in septal lateral annular dimensions between MitraClip group at baseline and 5 years. Stratified according to MR etiology (degenerative MR or functional MR), there were no differences in freedom from mortality and re-intervention between surgery group and MitraClip group with degenerative MR, as well as with functional MR. The COAPT (Clinical Outcomes Assessment of the MitraClip Percutaneous Therapy for Extremely High-Surgical-Risk Patients) trial is examining the safety and effectiveness of the MitraClip device in high-surgical-risk patients with MR and heart failure who are randomized to either percutaneous mitral repair or control group with standard medical therapy alone. This trial will not simply test the feasibility of percutaneous repair in patients who are too sick to undergo surgery, but will represent an important step in understanding whether mitral valve repair offers an advantage at all in patients with failing ventricles.

Percutaneous LAA Closure for Atrial Fibrillation

Saibal Kar, MD
Cedars Sinai Medical Center

Stroke prevention in patients with non-valvular atrial fibrillation (NVAF) has been crucial. Although antiarrhythmic drugs and catheter ablation provide symptomatic relief for patients with atrial fibrillation, neither method is sufficiently reliable in preventing thromboembolic events. Traditional treatment strategies have relied on chronic anticoagulation, either with warfarin or newer anticoagulant agents. Growing information regarding the central role of left atrial appendage (LAA) thrombus has led to mechanical approaches for stroke prevention in this setting. A number of catheter- and surgical-based strategies have been studied. In the PROTECT AF (Watchman Left Atrial Appendage System for Embolic Protection in Patients With Atrial Fibrillation) study, LAA occlusion was documented to be non-inferior to warfarin for the primary efficacy endpoint of stroke, cardiovascular death, and systemic embolism. An early safety hazard was identified: an increase in periprocedural events of pericardial effusions, which did not result in mortality but did prolong hospital stay. Longer term follow-up of PROTECT AF has confirmed the efficacy of LAA occlusion. Within the early and late PROTECT AF experience, as well as the CAP Registry, procedural /device-related safety events declined significantly.

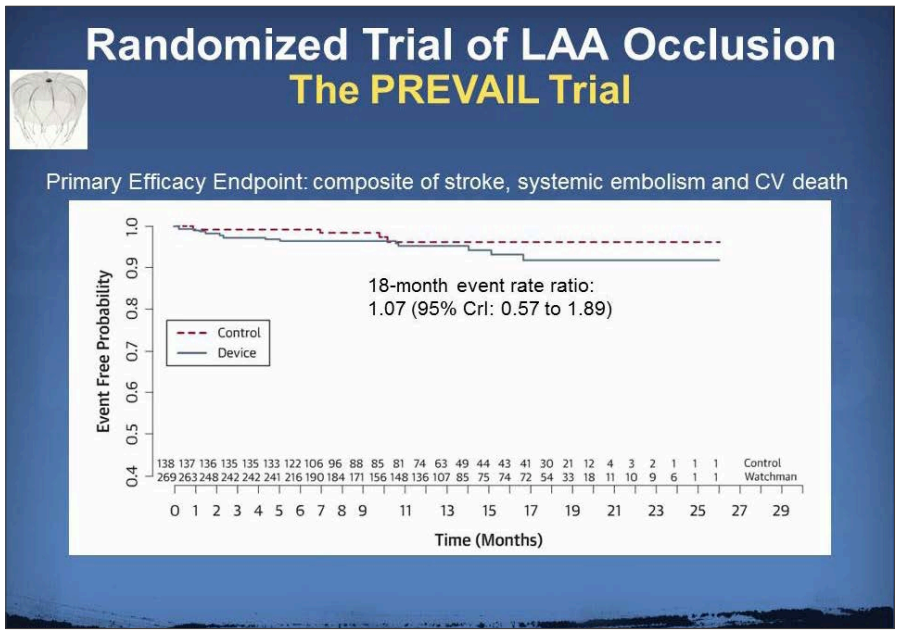


Figure 5.

The PREVAIL (Prospective Randomized Evaluation of the Watchman LAA Closure Device In Patients With Atrial Fibrillation Versus Long Term Warfarin Therapy) trial assessed the safety and efficacy of LAA closure with the Watchman device compared with warfarin in patients with NVAF and a $CHADS_2$ score ≥2. The 18-month event rates of the first primary efficacy endpoint were similar and expectedly low in both the device group (0.064) and the control group (0.063), without achievement of statistical non-inferiority. Overall event rates were lower than expected, which may have contributed to this finding. Watchman LAA occlusion was non-inferior to chronic warfarin for the prevention of stroke and systemic embolism beginning 1 week after randomization. The totality of the data now available on the procedural safety and long-term efficacy for the Watchman device support that closure of the LAA remains a reasonable alternative to chronic/long-term warfarin therapy for prevention of stroke/systemic embolization in patients with NVAF.

Thursday, April 30, 2:00 PM - 6:00 PM, Endovascular & Structural Heart Theater, Level 1

Pediatric Structural Heart Disease Symposium

This year at the 20th TCTAP, Pediatric and Congenital Intervention Sessions will range over various topics with hot current issues in congenital and structural intervention. Also this year, 3 Taped Case & Lecture sessions consisting taped live cases and relevant lectures will be introduced, which may provide a good opportunity to learn and discuss complex procedures and techniques. In the first session on PFO closure, every aspect from patient selection to the management of complications will be discussed along with future perspectives for treatment of patients with PFO associated with cryptogenic stroke. Subsequent sessions include taped cases of percutaneous pulmonary valve implantation, lectures on the indication, techniques, and outcomes of currently available valves as well as 3D printing technology for RVOT interventions. Afternoon sessions will start with the Taped Case & Lecture session for coarctation stenting; treatment options and technical details will be suggested and discussed. Lectures include "Catheter Intervention for ACHD Patient: Who Care and Manage?" "Cost Effective Strategies for Congenital and Structural Heart Disease," "Ductal Morphology: Determining PDA Stenting Strategy," "Closure of Coronary Artery Fistulas and Long Term Outcomes," "Percutaneous Balloon Angioplasty for Critical Aortic Coarctation in Newborns and Infants: Is It Still a Valid Option?" "New Imaging Modalities in Intervention-Rotational Angiography & Echo-navigator," and "Device Closure of PDA in Premature Neonates" will be presented and then discussed in round table discussion session. The last Taped Case & Lecture session will deal with device closure of VSD; selection of an optimal device in each patient may be one of the key discussion points in this session. Last but not least, an evening symposium with the theme of "Transcatheter Closure of ASD in 2015" will be in the same place covering all the issues in closing complex ASDs, novel techniques, and management of complications.

Thursday, April 30, 8:30 AM - 6:15 PM, Room 105, Level 1

Combination of Thrombus Aspiration, High-Dose Statin, Adenosine and Platelet Membrane Glycoprotein II b/III a Receptor Antagonist Reduce the Incidence of No-Reflow After Primary PCI in Patients with ST-Segment Elevation Acute Myocardial Infarction

Primary percutaneous coronary intervention (PCI) is currently the most effective treatment strategy in ST-segment elevation myocardial infarction (STEMI). A considerable number of patients, however, develop no-reflow phenomenon during primary PCI. Compared to similar patients with adequate reflow, those with the no-reflow phenomenon have a higher incidence of death, MI, and heart failure. No-reflow is considered a dynamic process characterized by multiple pathogenic components including distal atherothrombotic embolization, ischemic injury, reperfusion injury, and susceptibility of coronary microcirculation to injury; current treatments are limited.

Dr. Yun-Dai Chen et al. from PLA General Hospital, China, will present their randomized controlled study to investigate the effectiveness of a combination therapy for the prevention of no-reflow in patients with STEMI undergoing primary PCI. They have established a risk prediction model of no-reflow in their previous studies to find patients at high risk of no-reflow. A total of 621 patients with STEMI who underwent primary PCI were enrolled in this study. Patients with high risk of no-reflow (no-reflow score ≥10, by using a no-reflow risk prediction model, n=216) were randomly divided into either control group (n=108) or combination therapy group (n=108). Patients in the control group received conventional treatment, while patients in the combination therapy group received high-dose (80 mg) atorvastatin pre-treatment, intracoronary administration of adenosine (140 μg/min/kg) during PCI procedure, glycoprotein Ⅱb/Ⅲa receptor antagonist (tirofiban, 10 μg/kg bolus followed by 0.15 μg/kg/min infusion), and thrombus aspiration. Myocardial contrast echocardiography (MCE; SonoVue®; Bracco) was performed to assess the myocardial perfusion 72 hours after primary PCI. Major adverse cardiac events (MACE) were followed up for six months. Of the 769 patients with STEMI, 621 eligible patients were enrolled. Among which 216 (34.8%) high risk patients with no-reflow were selected using the no-reflow risk prediction model. No-reflow occurred in 11 cases (11/405, 2.7%) in low risk patients, 38 cases (38/108, 35.2%) in the control group, and 3 cases (2.8%) in the combination therapy group (Figure 1). MCE at 72 hours after primary PCI procedure suggested a higher A × β value in the combination therapy group than that of the control group (Figure 2). Six months clinical follow-up was obtained in 552 patients. There were 6 (6.3%) events (1 death, 2 non-fatal MIs and 3 revascularizations) in the combination therapy group which was significantly lower than the 12 (13.2%) events (4 deaths, 3 non-fatal MIs and 5 revascularizations) in the control group.

Dr. Yun-Dai Chen will conclude that using the no-reflow risk prediction model to screen AMI patients suffering with high risk of no-reflow and pre-treating them with combination treatment could significantly lower the incidence of no-reflow and further improve the prognosis. MACE in the combination treatment group decreased by 55% compared with the control group.

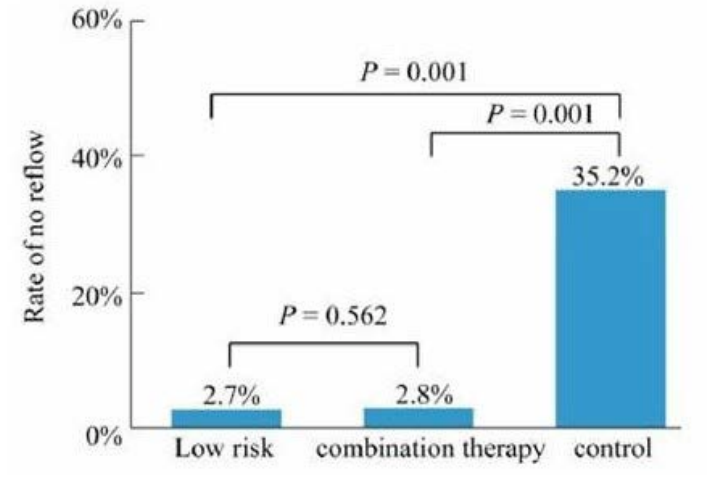


Figure 1. Rates of no-reflow in patients with low risk score and high risk score.

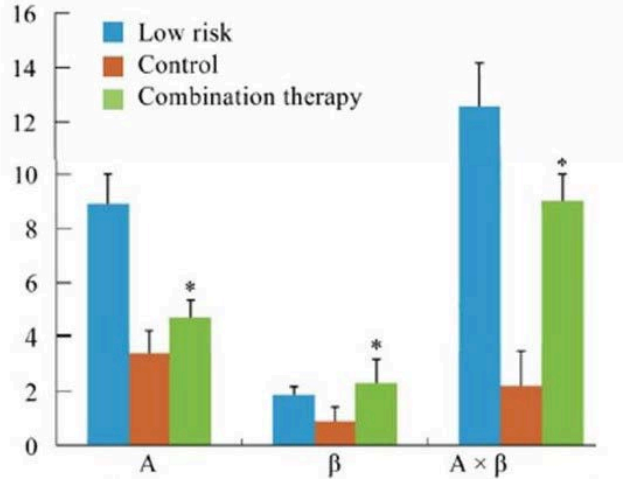


Figure 2. MCE parameters in patients with low risk and high risk score. *Compared with high risk-control (p<0.05).

Stent Thrombosis That Long Inflation Using Perfusion Balloon was Effective to Manage Large Amount of Thrombus

Today, Dr. Yoshito Kadoya from Kyotambacho Hospital, Japan, will present a case of a patient suffering from acute stent thrombosis and massive thrombotic burden. The 58-year-old man had a history of untreated diabetes. His electrocardiogram (ECG) showed ST elevation at Ⅱ, Ⅲ, and aVF; troponin I level was mildly elevated. He was diagnosed with acute coronary syndrome (ACS) and emergency coronary angiography (CAG) revealed critical stenosis of proximal right coronary artery (RCA) with slow distal flow (TIMI 1-2) and left coronary angiogram showed significant stenosis at the proximal left anterior descending artery while the diagonal branches had good distal flow. Dr. Yoshito Kadoya and his colleague placed a drug-eluting stent proximal to the middle RCA and coronary flow was recovered (TIMI 3). A half day after the initial PCI, however, ECG showed persistent ST elevation at Ⅱ, Ⅲ, and aVF; cardiac enzymes kept increasing and the patient was still hemodynamically unstable. Echocardiogram showed akinetic motion of the inferoposterior wall. CAG was performed again. At the second CAG, right coronary angiogram showed thrombotic in-stent occlusion at proximal RCA (Figure 3) and left coronary angiogram was similar to the initial angiogram. They diagnosed it as acute stent thrombosis at the proximal RCA near the ostium. Argatroban hydrate as an anticoagulant agent was used because of the possibility of heparin-induced thrombocytopenia. A 6 Fr sheath was inserted through the left radial artery. The right coronary ostium was engaged with a 6 Fr JR 4.0 catheter that has side holes. A 0.014 inch SION Blue® (Asahi Intecc, Japan) supporting a finecross GT® (Terumo, Japan) was inserted into the RCA easily. Dr. Kadoya and his colleague perfomed thrombus aspiration 3 times using Rebirth® (Goodman, Japan) and Dio® (Goodman, Japan), and a lot of thrombus was removed. However, it was observed by intravascular ultrasound that a large amount of thrombus still remained in the stent. They performed balloon dilatation with a non-compliant balloon several times. And then, they performed long inflation with Ryusei® (KANEKA Medix, Japan) perfusion balloon 3 times. After long inflation with perfusion balloon thrombus almost disappeared. Dr. Yoshito Kadoya and his colleague placed an additional stent at the site of small dissection of proximal RCA. The final result was good with TIMI 3 flow (Figure 3). Perfusion balloon Ryusei® (KANEKA Medix, Japan) maintains coronary perfusion during balloon inflation. This balloon has 16 side holes on the near side of the balloon (Figure 4), and the coronary blood flow enters into the central lumen of the catheter shaft distal to the site of the balloon.

Dr. Yoshito Kadoya will mention that we often use this perfusion balloon in cases of coronary perforation for sealing perforated coronary segment with maintenance of distal flow; this time, we experienced a case of acute stent thrombosis where long inflation using perfusion balloon was effective to manage the large amount of thrombus. He will conclude that in cases of stent thrombosis, it is often difficult to control large amount of thrombus and in such situations using perfusion balloon should be considered when thrombus is uncontrollable.

Moderated Oral Competition Session,
April 29, 2:00 PM - 6:00 PM,
Abstract Zone I & II, Case Zone I & II & III,
Level 1

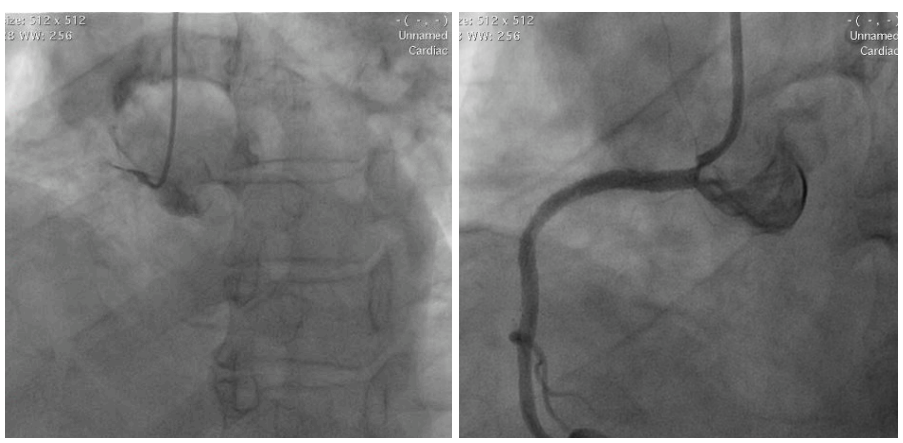


Figure 3. Acute stent thrombosis at proximal RCA and post-angiogram after using Ryusei perfusion balloon.

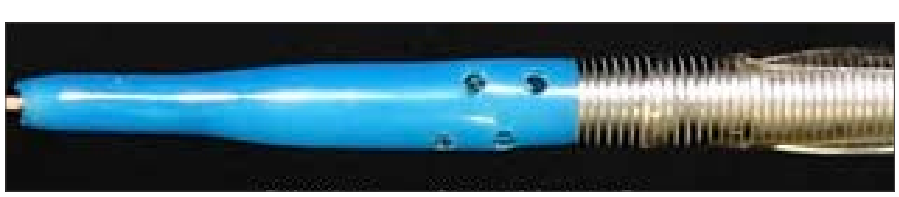


Figure 4. Ryusei® (KANEKA Medix, Japan) perfusion balloon.

Yesterday's Glorious Best Presenters from Competition Sessions

A number of interesting abstracts and cases were submitted from all over the world to TCTAP 2015 this year. A few abstracts were selected to be presented at the Moderated Oral Competition after being strictly reviewed by the scientific committee. About 100 authors presented in each Abstract & Case Competition session and only 20 presenters were selected after evaluation. Here is the list of glorious Best Abstract/Case Presenters.

Best Abstract Presenter from Abstract Zone

1-1. **Won-Keun Kim, MD** (Germany, Kerckhoff Heart Center)
1-2. **Yusuke Watanabe, MD** (Japan, Teikyo University Hospital)
1-3. **Lucy Youngmin Eun, MD** (Korea, Republic of, Teikyo University Hospital)
1-4. **Seung-Woon Rha, MD** (Korea, Republic of, Korea University Guro Hospital)
2-1. **Farhat Fouladvand, MD** (Italy, Holy Family Hospital)
2-2. **Kenta Murakami, MD** (Japan, Nagoya Tokushukai General Hospital)
2-3. **Farhat Fouladvand, MD** (Italy, Holy Family Hospital)
2-4. **Yukio Mizuguchi, MD** (Japan, Sakurakai Takahashi Hospital)

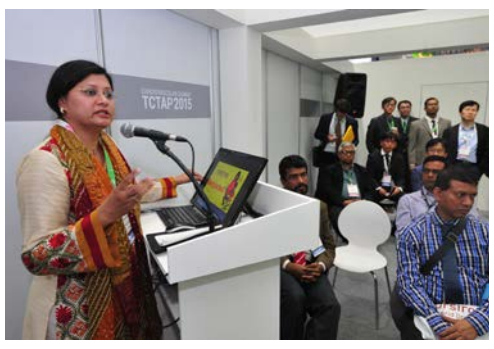
Best Case Presenter from Case Zone

1-1. **Joshua P. Loh, MD** (Singapore, National University Heart Centre)
1-2. **Hou Tee Lu, MD** (Malaysia, Sultanah Aminah Hospital)
1-3. **Feng-Ching Liao, MD** (Taiwan, Mackay Memorial Hospital Taitung Branch)
1-4. **Cheng Chung Hung, MD** (Taiwan, Kaohsiung Veteran General Hospital, Pingtung Branch)
2-1. **Liang-Ting Chiang, MD** (Taiwan, National Taiwan University Hospital, Yunlin Branch)
2-2. **Maoto Habara, MD** (Japan, Toyohashi Heart Center)
2-3. **Masaki Tanabe, MD** (Japan, Dai-ni Okamoto General Hospital)
2-4. **Takahide Suzuki, MD** (Japan, JA Hokkaido Engaru Kosei General Hospital)
3-1. **Xue Yu, MD** (China, Beijing Hospital of the Ministry of Health)
3-2. **Yian Yao, MD** (China, Shanghai East Hospital Tongji University)
3-3. **Ho Lam, MD** (Hong Kong, China Tuen Mun Hospital)
3-4. **Wen-Lieng Lee, MD** (Taiwan, Taichung Veterans General Hospital)

We have a special presenter who won the Best Abstract from both Abstract Zone 2-1 and 2-3. The presenter shared his feelings on winning the Best Abstract award.

I, Dr. Farhat Fouladvand, interventional cardiologist from Ospedale Sacra Famiglia Erba, Italy, and active participant of TCTAP (Best Case Presenter 2013, Best Abstract Presenter 2014) won Best Abstract twice at this year's TCTAP 2015. It's a great pleasure and honor for me to be part of TCTAP and to share the cardiology achievements of my hospital at this important word congress. I hope to be able to continue to improve my knowledge in the future at TCTAP.

Farhat Fouladvand, MD (Ospedale Sacra Famiglia Erba)



Moderated Abstract & Case Competition
is held from 2:00 PM to 6:00 PM today
in Exhibition hall, Level 1.

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July 20(Mon) - November 20 (Fri), 2015
*Only online submission is available via submission website,
for more information kindly contact abstract@summitmd.com.

All accepted abstracts and cases of TCTAP 2015 are published in the online JACC supplement.
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- Event Running Hours:

Date	Time
Tuesday, April 28	10:00 AM~04:00 PM
Wednesday, April 29	09:00 AM~04:00 PM
Thursday, April 30	09:00 AM~04:00 PM

- Event papers are provided when you check-in at the Registration Booth. Also, be noted that gifts can be received only on-site during TCTAP2015 (Tuesday, April 28 - Friday, May 1)
- Announcement: Every 5pm, April 28~30
- Gift Pick-up Desk: Level 1, B2 Hall Lobby, Exhibition desk (Next to the Registration Booth)

20th Anniversary Exhibition Event


TCTAP 2015
A Transition From Disease to Health
Imaging / Omics / Regeneration / Life Style
Complex
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Wrap-up
Interview


Abstract Zone


TCTAP 2015
20th TCTAP2015
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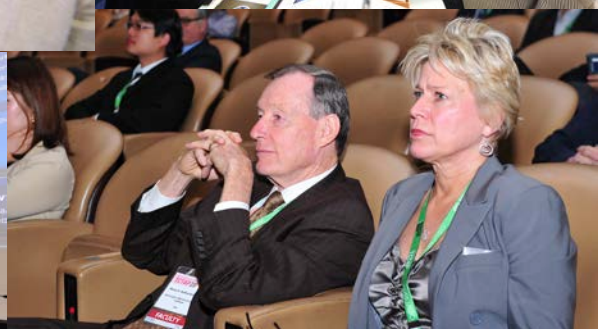
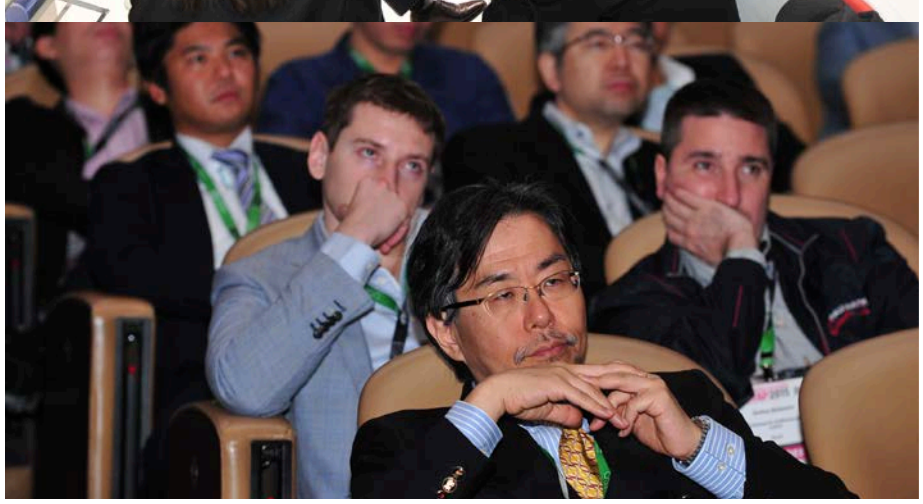
CARDIOVASCULAR SUMMIT
TCTAP2015


Live Case Session USA
Live Case Briefing
Live Case Session
Columbia University Medical Center
New York, USA
CVRF
20th TCTAP2015

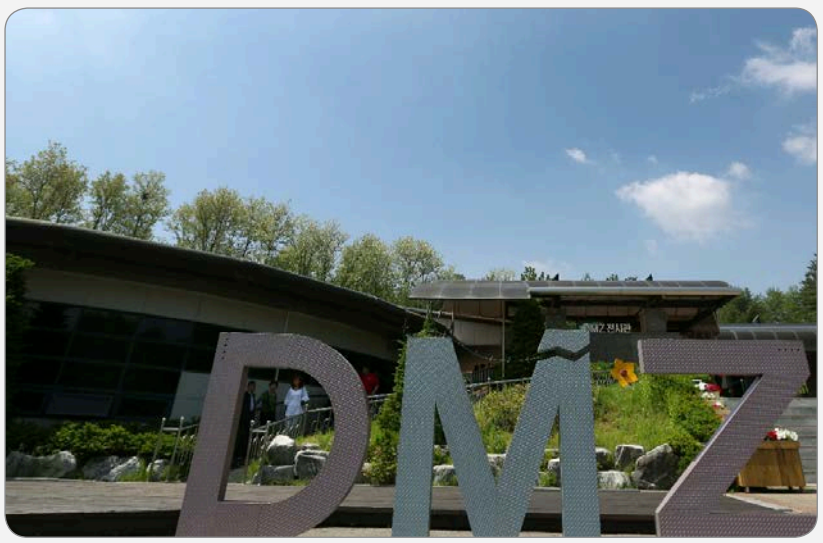

Live Case Session 1
Asan Medical Center
Seoul, Korea


Case Zone
TCTAP 2015





Must Visit Place in Seoul



Korea's Painful History: the DMZ

The **DMZ** is a buffer zone between two Koreas, bisecting the Korean Peninsula. The zone ranges 2 km north and south respectively from the ceasefire line of 1953. The DMZ has been a popular tourist spot in Korea for foreigners since the fall of the Berlin Wall in 1989.
It's one of the most well-preserved wild-life refugees where peace and tension coexist. The President of Korea, Park Geun-hye, is pushing to build a "peace park" in the DMZ as a new symbol of political reconciliation and ecological conservation.

Please visit Tour Information Desk, Level 1, for more information

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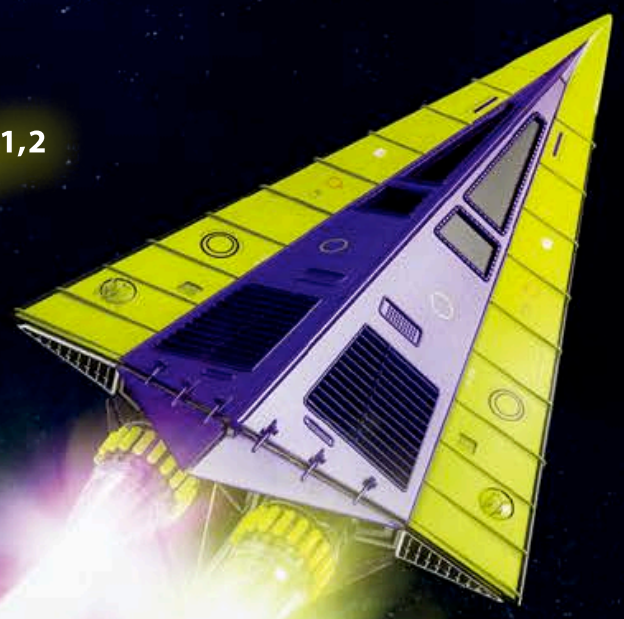

References :

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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