

Spring 2012-Vol 3, Issue 1
 The Newsletter of the CVRF

IN THIS ISSUE

page 1 Program Highlights: The 17th ANGIOPLASTY SUMMIT-TCTAP 2012

page 1 Result from ACC.12 Impact Interventional Practice

PAPER PUBLICATION

page 2 Paradigm Shift to Functional Angioplasty: New Insight for FFR and IVUS guided PCI

CLINICAL TRIAL

page 3 IRIS-DEFER Registry

CVRF NEWS

page 3 CVRF Academic Activity

MEETINGS UPDATE

page 4 The 1st TAVI SUMMIT 2011

page 4 The 5th IMAGING & PHYSIOLOGY SUMMIT and 6th CHRONIC TOTAL OCCLUSION LIVE 2012

TRAINING PROGRAM (ACT)

page 4 The Report of ACT Program for the last 3 years

Program Highlights: The 17th ANGIOPLASTY SUMMIT-TCTAP 2012



For the last 16 years ANGIOPLASTY SUMMIT-TCTAP has achieved substantial development on the quality of program contents. This has been made by the numbers of faculty members who have made many innovative contributions to the growth of its academic and administrative activities as well as young, energetic researchers who actively participate in this meeting every year.

Now ANGIOPLASTY SUMMIT-TCTAP has become one of the leading names representing interventional therapy, and it will continuously grow to achieve the ultimate goal of improving the quality of medical care for patients not only in Asia but overseas. Whatever you come with to this meeting, you can bring back something new, useful, and worthy in your career path. Below is the list of highlighted programs for TCTAP 2012.

TCTAP Fellowship Course - Left Main & Bifurcation PCI: From Accurate Diagnosis to Treatment

From Tuesday to Friday, your days are full with interesting, dynamic academic environment. Of the sessions TCTAP Fellowship Course is specially designed for fellow and young cardiologists who need step by step learning points of left main and bifurcation PCI. There still remains something that needs

to be resolved in the treatment of left main and bifurcation. And for this reason this session specially addresses some important insights for treating diseases and technical and clinical challenges in which the experts experience on a daily basis. It is really exciting to see and listen to knowledge and technical know-how presented by the most experienced cardiologists.

International Chambers: Partnership Sessions with Global Society

For the first time, TCTAP 2012 holds a joint session with leading international society.

Partners attending in this session are Chinese College of Cardiovascular Physician(CCCP), Indonesian Society of Interventional Cardiology(ISIC), National Intervention Council(NIC) and CardioAlex PanArab. The objective of this session is to allow partners' members to deepen their knowledge through sharing different perspectives and establish a direct contact with professionals from other countries.

Meet the Experts over Breakfast

One of the main advantages of this session is a lively open communication on each topic between the experts and attendees. Every current issue in cardiovascular and endovascular interventional field, including FFR, CTO intervention, DES technologies, and TAVI are discussed with.

The State of the Art Lectures: Wrap-up and Brand-New Knowledge with Expert

Clinical trials and new solutions for treating patients have been introduced and presented over the past year in many counties. This session is intended to explore recent advances in cardiology and review the most influential and significant researches with experts.

(See TCTAP 2012 Program Highlights, Page 3)

Results from ACC.12 Impact Interventional Practice

The ACC.12 meeting, held on March 24-27, in Chicago, USA, offered clinical trial results and new developments with the potential to impact interventional cardiology.

➡ Late (≥ 2 year) Clinical and Echocardiographic Outcomes after TAVR: Results From the High-Risk Cohort of the PARTNER Trial

The 2-year outcomes of PARTNER (The Placement of Aortic Transcatheter Valves) trial on high surgical risk patients were presented in this year ACC meeting. The PARTNER trial demonstrated that among high-risk patients with aortic stenosis, the 1-year survival rates are similar with transcatheter aortic-valve replacement (TAVR) and surgical replacement. In this

presentation, paravalvular regurgitation was more frequent after TAVR ($P < 0.001$), and even mild paravalvular regurgitation was associated with increased late mortality ($P < 0.001$). However, the rates of death from any cause were similar in the TAVR and surgery groups at 2-year follow-up. In addition, the frequency of all strokes during follow-up did not differ significantly between the two groups. Therefore, this study supports TAVR as an alternative to surgery in high-risk patients.

➡ CABG May Lower Mortality in Multivessel Disease Patients; Results From ASCERT Study

ASCERT (ACCF and STS Database Collaboration on the Comparative Effectiveness of Revascularization Strategies) study was presented at ACC 2012 scientific sessions and coincidentally published in New English Journal of Medicine. This study combined data from the American College of Cardiology Foundation (ACCF) CathPCI registry, the Society of Thoracic Surgeons (STS) CABG database, and Medicare claims and

(See ACC.12, Page 2)

ACC.12

demonstrated CABG may lower mortality in multivessel disease patients. Among patients 65 years of age or older who had two-vessel or three-vessel coronary artery disease without acute myocardial infarction, 86,244 underwent CABG and 103,549 underwent PCI. The median follow-up period was 2.67 years. At 1 year, there was no significant difference in adjusted mortality between the groups (6.24% in the CABG group as compared with 6.55% in the PCI group; risk ratio, 0.95; 95% confidence interval [CI], 0.90 to 1.00). At 4 years, there was lower mortality with CABG than with PCI (16.4% vs. 20.8%; risk ratio, 0.79; 95% CI, 0.76 to 0.82). Similar results were noted in multiple subgroups and with the use of several different analytic methods. They concluded that among older patients with multivessel coronary disease that did not require emergency treatment, there was a long-term survival advantage among patients who underwent CABG as compared with patients who underwent PCI. However, given limitations of observational cohort study, we should interpret these results with caution.

Another impressive research presented in this ACC 2012 meeting is about the very potent LDL reduction therapy. Human monoclonal antibody specific to proprotein convertase subtilisin/kexin 9 (PCSK9) treatment showed the reduction of LDL cholesterol by more than 70% from baseline among a group of patients treated with atorvastatin who still had elevated cholesterol levels. PCSK9 is a serine protease synthesized in the liver. Upon entering the circulation, it binds to hepatic LDL receptors, leading to their breakdown. As a result, the liver loses some of its capacity to remove LDL cholesterol from circulation, which results in an increase in LDL-cholesterol levels.

They reported three phase 1 studies of a monoclonal antibody to PCSK9 designated as REGN727/SAR236553. In healthy volunteers, they performed two randomized, single ascending-dose studies of REGN727 administered either intravenously (40 subjects) or subcutaneously (32 subjects), as compared with placebo. These studies were followed by a randomized, placebo-controlled, multiple-dose trial in adults with

heterozygous familial hypercholesterolemia who were receiving atorvastatin (21 subjects) and those with nonfamilial hypercholesterolemia who were receiving treatment with atorvastatin (30 subjects) (baseline LDL cholesterol, >100 mg per deciliter [2.6 mmol per liter]) or a modified diet alone (10 subjects) (baseline LDL cholesterol, >130 mg per deciliter [3.4 mmol per liter]). REGN727 doses of 50, 100, or 150 mg were administered subcutaneously on days 1, 29, and 43. They found that REGN727 significantly lowered LDL cholesterol levels in all the studies. In the multiple-dose study, REGN727 doses of 50, 100, and 150 mg reduced measured LDL cholesterol levels in the combined atorvastatin-treated populations to 77.5 mg per deciliter (2.00 mmol per liter), 61.3 mg per deciliter (1.59 mmol per liter), and 53.8 mg per deciliter (1.39 mmol per liter), for a difference in the change from baseline of -39.2, -53.7, and -61.0 percentage points, respectively, as compared with placebo ($P < 0.001$ for all comparisons). Although a monoclonal antibody to PCSK9 significantly reduced LDL cholesterol levels, findings should be tested in a randomized clinical trial for hard outcomes whether it is beneficial or not.

PAPER PUBLICATION

Paradigm Shift to Functional Angioplasty: New Insight for FFR and IVUS guided PCI

Circulation 2011 Aug 23;124(8):951-7



In 2011, Seung-Jung Park, MD from Asan Medical Center, Seoul, Korea summarized the concept of **Functional Angioplasty** and published in *Circulation*.

During the several decades, revascularization for acute coronary syndrome was considered as life saving procedure. In fact, the studies demonstrated that the revascularization was associated with lower mortality in STEMI patients or lower hard endpoints (death or myocardial infarction) in ACS patients. In contrast, the efficacy of revascularization in patients with stable coronary artery disease has been debatable. Large randomized clinical trials comparing the revascularization and the optimal medical treatment such as COURAGE or BARI2D trials failed to demonstrate the benefit of stent implantation. Therefore, stent seems to be implanted only in medically refractory patients having objective evidence of ischemia. However, in the real world practice, only 40% of patients underwent stent implantation performed stress test prior to Percutaneous Coronary Intervention (PCI). Given the finding that Fractional Flow Reserve (FFR) was more than 0.80 in about 40% of angiographic significant stenosis, unnecessary procedure was performed in substantial stable coronary artery disease patients. In addition, only 50% of PCI procedure in stable coronary artery patients was considered as appropriate according to the PCI appropriate use criteria. Therefore, to make treatment decision for PCI, FFR should be applied, particularly in case of obscure ischemic potential to avoid unnecessary stent implantation and

related complication, which may be associated with the improvement of PCI outcomes.

The most important reason why we should use FFR in daily cath lab activity is the inaccuracy of coronary angiogram in determining the functional severity of coronary artery stenosis. During several decades, coronary angiography was used as the limited golden standard to diagnose the obstructive coronary artery disease. However, coronary angiography alone may over- or underestimate the severity of coronary artery stenosis. A sub-analysis from the FAME study thoroughly evaluated the “visual-functional mismatch” of coronary artery disease. Of the patients with 3 vessel disease, as assessed by visual estimation, only 14% had 3 vessel disease after FFR measurement, whereas 9% had no functionally significant stenoses. Of the 1,329 target lesions (>50% stenosis by visual estimation), only 816 (61%) had FFR ≤ 0.80 . Furthermore, among lesions with stenosis of 50% to 70%, 71% to 90%, and 91% to 99%, only 65%, 20%, and 4%, respectively, were found to have FFR >0.80. Of 509 patients with angiographically defined multi-vessel disease, only 235 (46%) had functional multi-vessel disease (≥ 2 coronary arteries with an FFR ≤ 0.80). These findings indicated that, in the absence of FFR, about 40% of unnecessary procedures would have been performed in functionally insignificant stenotic lesions. Furthermore, a considerable proportion of patients who could have been treated by PCI underwent bypass surgery.

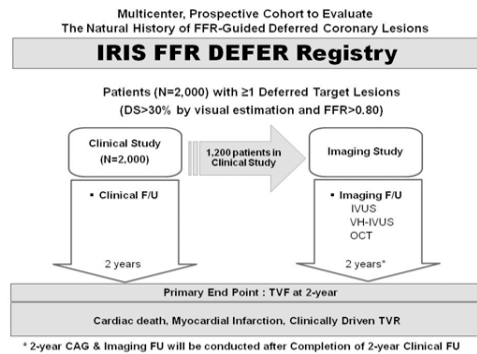
Recently, we analyzed that factors associated with visual-functional mismatch in patients who simultaneously underwent FFR measurement and intravascular ultrasound. We found that the discrepancy between coronary angiography and FFR in assessment for coronary artery stenosis was attributable to the various clinical and lesion specific factors, frequently unrecognizable in diagnostic coronary angiography, suggesting coronary angiography cannot sufficiently predicts the result of FFR. Therefore, interventional cardiologists should overcome the personal

visual bias that produces suboptimal outcome option and employ the functional evaluation prior to PCI.

As a complementary modality, IVUS also carries an important role in contemporary PCI procedure. First, above all, we reevaluated the IVUS MLA criteria to determine the functional significance. We addressed these issues in 201 patients with 236 coronary lesions who underwent pre-interventional IVUS and FFR measurements to determine the best IVUS MLA criteria corresponding to FFR <0.80. Using ROC analysis, we provided new IVUS MLA criteria, showing that the best cut-off value of IVUS MLA for predicting FFR <0.80 was 2.4mm², a figure smaller than previously reported. However, even using our new, stricter criteria of MLA, <2.4mm², 30% of analyzed lesions had MLA <2.4mm² but FFR >0.80. Thus, we demonstrated that regardless of cutoff values, use of IVUS MLA criteria alone could not predict the result of FFR measurement and still lead to the performance of unnecessary procedures in a considerable proportion of patients. Therefore, operator should be aware of this disconnection between visual by IVUS and functional relationship. In addition, MLA alone cannot replace the role of non-invasive or invasive functional studies in making clinical decisions about whether to dilate a coronary stenosis. Instead, IVUS should be utilized to secure the PCI procedure in accurately assessing coronary anatomy, assisting in the selection of treatment strategy, and in stent optimization. In addition, recent observational studies demonstrated that IVUS guided PCI was associated with lower adverse clinical outcomes in patients with significant left main coronary artery disease, bifurcation disease, and even in “real world” population.

In conclusions, FFR can be used to determine the functional significance of a stenotic lesion, whereas IVUS surveillance can be used to assess the anatomy of a lesion, including its size, the position of plaque, and the adequacy of stent deployment, the simultaneous utilization of these two complementary modalities may result in the optimization of PCI results, and may indicate the future direction of interventional cardiology.

IRIS-DEFER Registry



Even though ACC/AHA/SCAI Focused Updates to the Guidelines have raised "level of evidence" for use of FFR to "A" and expanded recommendations of FFR, there are remaining concerns about the long-term safety of deferred lesions. Nuclear imaging studies have suggested that

(Continued from, Page 1)

TCTAP 2012 Program Highlights

Moderated Complex Case & Abstract Competition

Every year these sessions are extremely popular and well attended. Many of interesting cases and abstracts are presented by passionate cardiologists, and they are always very competitive.

The numbers of case and abstract submissions are both increased, and 227 cases and 299 abstracts are presented at TCTAP. For each session 5-7 cases and abstracts are presented, and the panels review and select the best from each session. After the meeting, the two final winners, each from case and abstract presentations will be chosen for the first TCTAP Best Young Scientist Award. For TCTAP 2013 the deadline for abstracts is November 12, 2012 and case submission is due by December 12, 2012.

CVRF NEWS

CVRF Academic Activity

As a global partner and friend, 'ANGIOPLASTY SUMMIT-TCTAP' has collaborated with international medical societies from around the world. These partnerships provide TCTAP with the opportunity to expand its educational offerings.

In that link, CVRF and ANGIOPLASTY SUMMIT-TCTAP affiliated with Heart Institute of Asan Medical Center annually transmit live cases to educational meetings in this field.

treatment of non-ischemic coronary lesions may be deferred and that patients with these lesions may be safe. In a meta-analysis of thallium SPECT, the annual incidence of death or myocardial infarction was less than 1% per year in these patients.

The DEFER (FFR to Determine Appropriateness of Angioplasty in Moderate Coronary Stenoses) study randomized 325 patients scheduled for PCI into 3 groups and reported the 5-year outcomes(19). If FFR was ≥ 0.75 , patients were randomly assigned to the deferral group (n = 91, medical therapy for CAD) or the PCI performance group (n = 90, PCI with stents). If FFR was < 0.75 , PCI was performed as planned, and patients were entered into the reference group (n = 144). Complete follow-up was obtained in 98% of patients. Overall, the event-free survival was not different between the deferred and performed groups (80% and 73%, respectively, p = 0.52), and both were significantly better than in the reference group (63%, p = 0.03). The composite rate of cardiac death and acute myocardial infarction in the deferred, performed, and reference groups

was 3.3%, 7.9%, and 15.7%, respectively (p = 0.21 for deferred vs. performed and p = 0.003 for reference vs. both of the deferred and performed groups). The percentage of patients free from chest pain on follow-up was not different between the deferred and performed groups. The 5-year risk of cardiac death or myocardial infarction (MI) in patients with normal FFR is $< 1\%$ per year and is not decreased by stenting. Therefore, patients and lesions with insignificant FFR values were shown to have favorable outcomes.

However, previous studies were limited by selectively enrolled patients with relatively small number of populations. Studies in larger populations, with longer follow-up periods, are needed to confirm the long term safety of deferred PCI based on FFR. In addition, the longitudinal observation of the natural history of deferred lesion by clinical follow up or invasive imaging follow up using intravascular ultrasound, virtual histology, or optical coherent tomography must provide the valuable insight for the natural course of coronary atherosclerosis and may be helpful to identify the higher risk patients in future cardiovascular events.

Particularly in 2011, live demonstrations were sent to the following outstanding events, Left Main & CTO Summit (NY, the US), CardioAlex (Alexandria, Egypt), QICC (Hangzhou, China), TCT (San Francisco, the US). Advanced techniques and innovations were showcased and discussed live in two-way communication.



Jung Park, MD, Course Director of ANGIOPLASTY SUMMIT-TCTAP and Chairman at Heart Institute of Asan Medical Center. "We hope that these educational formats will contribute to connecting east and west and enrich physicians with better understanding of interventional cardiovascular medicine."

In addition, CVRF has attended International meetings in the field of interventional cardiology such as EuroPCR, TCT, AsiaPCR, CIT and many others as the exhibitor. Through promoting its annual meetings at these major conferences, CVRF is building growing relationship with the industry and potential attendees in this field.

The Heart Beat of CVRF

The Heart Beat of CVRF is produced by the CardioVascular Research Foundation

- ▶ Project Manager
Sohee Park
- ▶ Senior Manager
Kyung-Ae Kim
- ▶ Associate Editors
Jung-Min Ahn, MD / Hyerim Yun
Miju Hwang / Christine Park
Moon Na
- ▶ Managing Editor
Chesil Lee
- ▶ Designer
Ji Hye Park (Prime corp)

2F, Asan Institute for Education & Research, 388-1,
Poongnap-2 dong, Songpa-gu, Seoul, 138-736, Korea
Tel: 82-2-3010-4799/4689 | Fax: 82-2-475-6989
• www.summitMD.com • <http://www.cvrf.org>

ANGIOPLASTY SUMMIT-TCTAP also organized collaborating sessions titled 'Left Main and Bifurcation Stenting: Optimization with FFR and IVUS' at TCT 2011 (San Francisco, the US) as well as CIT 2012 (Beijing, China) featuring presentations by the world's leading experts, Seung-Jung Park, MD, Antonio Colombo, MD, Gregg W. Stone, MD, Jeffery W. Moses, MD, Marie-Claude Morice, MD, Patrick W. Serruys, MD and other great speakers. These sessions included the latest data on clinical studies and technical development related to this topic and ended up successfully.

"We will always drive forward the growing collaboration among global interventional cardiology societies," said Seung-

CardioVascular Research Foundation (CVRF)

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

→ The 1st TAVI SUMMIT 2011



The 1st TAVI SUMMIT 2011, which was held on September 2-3, 2011 at Sheraton Grande Walkerhill has been successfully wrapped up with a large delegate of 300 participants.

This 2-day symposium was newly designed to enable the attendees to understand the procedures and techniques on the latest information relating to Valvular Heart Disease and its non-surgical treatment, and to provide valuable practical guidance on how to use in the real Cath Lab.

It featured live case demonstrations using two different approaches; Transfemoral & Transapical, and valuable lectures from the renowned experts including a world-class leader, Dr. Alain G. Cribier from France.

In addition, many dedicated faculty enriched conference

program through real case presentation and special lectures such as aortic valve stenosis and adjunctive imaging modalities, emerging technology: TAVI and good practice of team work.

Exhibition offered a unique opportunity for the audience to share practical experience of device by discussion and Q&A.

The 2nd TAVI SUMMIT will take place in Sheraton Grande Walkerhill on September 7-8, 2012.

→ The 5th IMAGING & PHYSIOLOGY SUMMIT and 6th CHRONIC TOTAL OCCLUSION LIVE 2012

The 5th IMAGING & PHYSIOLOGY SUMMIT and 6th CHRONIC TOTAL OCCLUSION LIVE 2012 was held as a joint meeting for the first time on January 6-7, 2012 at Asan Medical Center, Seoul, Korea. The meeting was a great success with more than 450 participants from 17 countries including renowned leading experts, interventional specialists and industry supporters in the field of Imaging & Physiology and CTO.

Over 2 days, 11 cases were live demonstrated at Asan Medical Center by invited operators, and as one of the key features of the meeting, this live session provided attendees with practical lessons on the advanced techniques and useful tips & tricks for state-of-the-art devices. In addition, the meeting was much more highlighted with 49 valuable lectures from leading international experts, and interactive

Q & A and panel discussions added more academic atmosphere to each sessions.

With greater interest there were 56 cases being submitted, and among them, 45 challenging cases were accepted and enthusiastically presented by interventional cardiologists from various countries through the competition sessions.

For the exhibition, 18 medical companies attended and introduced their latest products to attendees.

Upcoming CVRF Sponsored Conferences

2012

2nd TAVI SUMMIT

- September 7 (Fri) - 8 (Sat), 2012
- Sheraton Grande Walkerhill Hotel, Seoul, Korea
- www.tavicconference.com

2013

18th ANGIOPLASTY SUMMIT-TCTAP

- April 23 (Tue) - 26 (Fri), 2013
- Sheraton Grande Walkerhill Hotel, Seoul, Korea
- www.summit-tctap.com

Call for Abstracts

August 1 (Mon) - November 12 (Mon), 2012

Call for Cases

August 1 (Mon) - December 10 (Mon), 2012

TRAINING PROGRAM (ACT)

→ The Report of ACT Program for the last 3 years

The ACT Program, Asan Medical Center Interventional Cardiology Training Program, has been successfully operating since 2009. This program is a very exclusive and intensive course. The participants can learn from the basics to high techniques of interventional cardiology in only 4 days. Also, they can upgrade their knowledge and obtain more skills through live case demonstration, hands-on experience, case presentation, round table discussion, and state-of-the-art lectures by mutual communications.

The regular ACT Program has been operated 39 times and there were 421 participants from 22 countries for 3 years (from 2009 to 2011) and the details are as follows;

Country	No.	Country	No.
Korea	119	Indonesia	5
China	83	Australia	5
India	64	Pakistan	2
Japan	59	Iran	2
Malaysia	15	Turkey	2
Hong Kong, China	14	Nepal	2
Bangladesh	13	UK	1
Thailand	11	UAE	1
Taiwan	8	Egypt	1
Vietnam	7	Philippines	1
Singapore	5	Yemen	1
Total			421

<Table 1> The Number of the Participants by Country

And almost all of the participants are interventional cardiologists and have had careers as a doctor for more than 7 years. The details are as below;

Specialty	No.
Interventional Cardiologist	312
General Cardiologist	67
Physicians Interested in Cardiology and Vascular Medicine	32
Industry Professional	7
Technologist	2
Radiologist	1
Vascular Surgeon	1
Vascular Medicine Specialist	1
Nurse	1
Total	421

<Table 2> Specialty of the Participants

Career	No.
More than 7 years	311
More than 5 years and less than 7 years	51
More than 3 years and less than 5 years	44
More than 1 year and less than 2 years	6
Less than 1 year	2
No response	7
Total	421

<Table 3> Career of the Participants

After every course, the program is evaluated by the participants and has received good scores on average as below;

Total Average	Information/Level/Expertise	Course Structure	Instructor	Satisfaction
88.25	87.98	88.51	90.56	90.09

<Table 4> Evaluation from the Participants

Over the last 3 years, the program has received positive feedback from previous participants and drives for making it more practical and efficient for physicians. The ACT Program will be continued with more developed programs in the future.

[Program]

<p>Catheterization Laboratory Activities</p> <ul style="list-style-type: none"> - Live Case Demonstration - Hands-on Experience in Cath lab - Free Discussion in the Training Center during the Procedure - Visiting Professors' Activities: Case Demonstration & Featured Lecture - Dynamic Round Table Discussions - Case Presentation & Discussion 	<p>Evidence-Based Lectures</p> <ul style="list-style-type: none"> -Core Lab Analysis -DES Issues -Complex Angioplasty -ACS Guideline -Preventive Medicine -Transcatheter Valve Therapies <p>and much more...</p>
--	---

[Registration Site & Contact]

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

For more information, please visit to www.cvrf.org

ACT Program
Asan Medical Center Interventional Cardiology Training Program