

Daily News

THE CONVENTION CENTER, SHERATON GRANDE WALKERHILL HOTEL, SEOUL, KOREA

Friday, April 27, 2012

Today's Highlights

Breakfast Meetings

Morning Roundtable Forum: Debates and Learning #11-#16
7:00 AM - 8:10 AM

Challenging Case Competition with Experts' Focus Review

Coronary Arena & Endovascular Arena,
8:30 AM - 3:30 PM

6th Cardiopulmonary Rehabilitation Workshop 2012

Tutorial Arena, Level 4, 8:30 AM - 12:45 PM

ANGIOPLASTY SUMMIT 2012 KCTA Symposium
(15th Annual Conference for Cardiovascular Nurse & Technologist)
Main Arena, Vista Hall, Level B2,
8:30 AM - 3:30 PM

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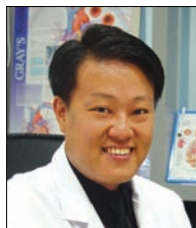
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Lessons from Two Late-Breaking Clinical Trials

Main Session 3, Main Arena, Level B2, 9:30 AM – 10:30 AM

Cilostazol in Acute Coronary Syndrome Patients Undergoing Percutaneous Coronary Intervention

Multicenter Randomized Trial Evaluating the Efficacy of Cilostazol on Inhibition of Platelet Aggregation, Inflammation and Myonecrosis in ACS Patients Undergoing PCI: the Results of ACCEL-LOADING-ACS (ACCElERated Inhibition of Platelet Aggregation, Inflammation and Myonecrosis by Adjunctive Cilostazol LOADING in Patients with Acute Coronary Syndrome) Trial



Young-Hoon Jeong, MD
Cilostazol pretreatment reduced platelet activation, inflammation and ischemia-reperfusion injury; these benefits have not been tested in a randomized study. Young-Hoon Jeong, MD, from Gyeongsang National University Hospital, Korea and his colleagues evaluated the efficacy and safety of cilostazol pretreatment in ACS patients. Dr. Young-Hoon Jeong

and colleagues randomized Asian patients with non ST-segment elevation (NSTEMI)-ACS to aspirin and clopidogrel (prePCI 600 mg loading + 75 mg/d) (DOUBLE=111) or adjunctive cilostazol (prePCI 200 mg loading +100 mg bid) to standard therapy (TRIPLE=107). Primary endpoint was 30d incidence of CV death, MI, or TVR. CK-MB and troponin I were measured before and 8 and 24hours after PCI. Platelet reactivity was assessed immediately before PCI by VerifyNow. TRIPLE had greater percentage platelet inhibition (% PIVerifyNow) (24±24% vs. 12±18%; p=0.003) and lower PRU (234±90 vs. 271±79; p < 0.001) compared with DOUBLE. Although TRIPLE showed higher CRP on-admission (7±22 vs. 2±6 mg/l; p=0.04), adjunctive cilostazol exhibited numerically lower increase in CRP between on-admission and 24hours post-PCI (4±10 vs. 6±12 mg/l; p=0.31). However, there was no difference in primary endpoint rate (TRIPLE, 28% vs. DOUBLE, 29%; p=0.79). In a multivariable analysis, diabetes, bifurcation lesion, stent length, platelet measurement

(PRU > 288 or PIVerifyNow ≤12%), and CRP were independent predictors of primary outcome (Figure). Combination of % PIVerifyNow ≤12%+CRP > 0.7 mg/l significantly increased the predictive value for the primary endpoint by 20-fold. Dr. Young-Hoon Jeong concluded that adjunctive cilostazol failed to reduce 30-day adverse cardiovascular event in NSTEMI-ACS patients undergoing PCI. East Asians appeared to have higher cutoffs of ischemic events compared with Caucasians. This is the first prospective study to show that combined estimation of platelet reactivity and

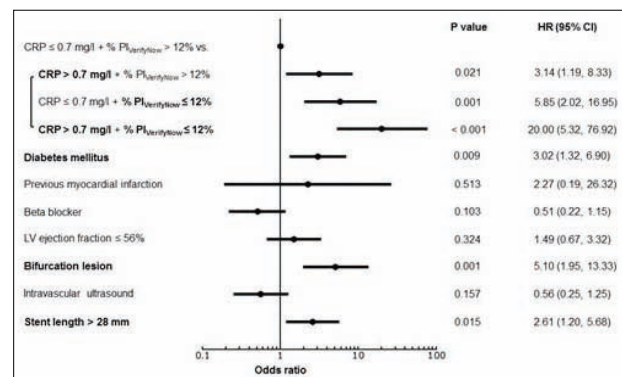


Figure. Independent Factor of primary Endpoint in Multivariable Adjusted Hazard Ratio

inflammation may improve risk stratification in these patients (NCT01354808).

Transradial Intervention in Myocardial Infarction

Clinical Investigation of Transradial Approach for Emergent Percutaneous Coronary Intervention in Patients with



Acute Myocardial Infarction.

Xuquang Qin, MD
Xuquang Qin, MD, from First Affiliated Hospital of Tsinghua University, China investigated the safety and efficacy of transradial approach for emergent percutaneous

coronary intervention in patients with acute myocardial infarction. Dr. Xuquang Qin and colleagues analyzed data from single-center registry on 596 consecutive patients between October 2003 and October 2009. All the patients were respectively randomized to transradial group (n=296) and trans-femoral group (n=300). A dedicated doctor was appointed to collect

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such indicators as follows: puncture time, CAG time, PCI time, x-ray exposure time, duration of hospitalization, and complication rates associated with puncture such as puncture site bleeding, hematoma, pseudoaneurysm, and major adverse cardiac events.

Dr. Xuquang Qin reported that there were no significant differences in the baseline characteristics and angiographic findings between the two groups. Dr. Xuquang Qin also

demonstrated that there were no significant differences in CAG time (8.2 ± 2.4 min vs 7.6 ± 2.0 min), PCI time (30 ± 6.8 min vs 29.6 ± 8.1 min), and x-ray exposure time (4.6 ± 1.4 min vs 4.4 ± 1.3 min) between the two groups. Furthermore, Dr. Xuquang Qin said that they could not find significant differences in puncture time (4.4 ± 1.6 min vs 2.4 ± 0.8 min) and time of hospitalization (3.2 ± 1.6 d vs 5.4 ± 1.8 d) between the two groups. Finally he reported the complica-

tion rates of TRA 2.03% (6/296), as compared to 6.0% (18/300) in the control group ($p < 0.0001$).

Dr. Xuquang Qin concluded that transradial approach for emergent percutaneous coronary intervention in patients with acute myocardial infarction could be safe and effective and it is suggested that the transradial approach should be used in patients with acute myocardial infarction.

Catheter-Based Renal Sympathetic Denervation

Endovascular Arena, Mugunghwa Hall 2, Level 1, 11:30 AM - 12:30 AM, April 26,

Tutorial Arena, Level 4, 7:00 AM - 8:10 AM, April 27

The 17th ANGIOPLASTY SUMMIT 2012-TCTAP had a program about the latest technical and clinical investment and case-based learning by live case presentation about catheter-based renal sympathetic denervation. On Thursday morning, at 11:30 AM in the Endovascular Arena, "Live Case Presentation for Renal Denervation" was held. In addition, at 7:00 AM, Wednesday, in the Tutorial Arena, there was a "Medtronic AP Morning Session: DES + ARDIAN (Renal Denervation)" covering topics ranging from patient selection to technique and tips of catheter-based renal denervation.

Resistant hypertension or therapy-refractory hypertension is defined as uncontrolled blood pressure despite the use of optimal doses of more than three antihypertensive drugs (including a diuretic). Patients with therapy-refractory hypertension are at particular risk for cardiovascular events. Despite numerous antihypertensive drugs, hypertension remains resistant in a considerable number of patients, thus creating the need for alternative strategies, including interventional approaches. Recently, catheter-based renal sympathetic denervation has been shown to be safe and effective in patients with resistant hypertension. Pathophysiology of kidney function, interaction and crosstalk between the kidney and the brain justifies the use of renal sympathetic denervation in the treatment of hypertension.

How to Select Patients for Renal Denervation?

The selection of patients for renal denervation was presented at the Tutorial Arena (Level 4), April 27th, at 7:00 AM by Dr. Justin E Davies (Walport Clinical Lecturer and Honorary Consultant Cardiologist at the National Heart and Lung Institute). He said that identification of "true resistant hypertension" is important. Several factors contributing to resistant hypertension are poor patient compliance, physician inertia, inappropriate drug combinations or inadequate dosing, drug-interaction, and secondary causes. The patients with these factors have to be excluded for renal denervation. In addition, 24-hr BP recordings and home BP monitoring is needed to exclude white coat hypertension. The patients with an estimated glomerular filtration rate of less than 45 mL/min per 1.73 m², substantial stenotic valvular heart disease, pregnancy and a history of myocardial infarction, unstable angina, or cerebrovascular accident in the previous 6 months should be excluded for renal denervation. To confirm anatomic

eligibility, renal duplex, computed tomography, MRI or renal angiography should be performed.

Technique for Renal Denervation: Case Examples and Challenging Case

The techniques and tips for renal denervation were discussed at the Tutorial Arena (Level 4), April 27th, at 7:35 AM by Dr. Horst Sievert (the Director of the CardioVascular Centre Frankfurt, Sankt Katharinen, Germany). He showed that the femoral artery was accessed with the standard endovascular technique and the Simplicity or Flex catheter was advanced into the renal artery and connected to a radiofrequency generator. Each radiofrequency (RF) energy application is followed by retraction by at least 5 mm and rotation by 90 degrees of the catheter tip, from the first distal main renal artery bifurcation to the ostium. To achieve complete denervation, multiple (4-6) RF applications are used depending on the length of the trunk of both renal arteries. This approach provides circumferential disruption of sympathetic nerves. He said that injection of heparin to achieve an activated clotting time of more than 250 sec and intravenous anxiolytics and narcotics to manage intraprocedural diffuse visceral pain is important. He emphasized that detection of procedure related complication such as renal artery dissection and renal artery stenosis is a major concern.



Potential New Applications and Future Direction

Renal denervation not only reduces resistant hypertension but also decreases left ventricular mass and improves diastolic function in patients with hypertensive heart disease, according to a new analysis stemming from the Symplicity HTN-2 trial. Renal denervation's positive effect on LV hypertrophy is "a big plus" for renal denervation. Renal denervation may be especially useful for patients with diastolic heart failure because the patients have a big, thick heart that doesn't relax normally in diastole, although contractile function is okay.

A recent study by Witkowski et. al (Renal Denervation in Patients With Refractory Hypertension Study) (NCT00483808) published recently demonstrated that treatment of resistant hypertension can not only improve BP control, but importantly, might reduce the frequency of apnea/hypopnea in patients with coexisting sleep apnea.

Since impaired glucose tolerance (IGT) or type 2 diabetes mellitus coexists with hypertension, more effective BP control should be accompanied by treatment of obesity and lipid disorders in patients with hypertension (metabolic syndrome), as well – with weight reduction, lipid lowering medication and improvement of glucose metabolism. Importantly, obesity, hypertension and insulin resistance have a common pathophysiology. Hyperinsulinemia and an increased sympathetic tone can lead to sodium retention and hyperaldosteronemia. Mahfoud et al. showed that in patients with resistant hypertension treated with renal denervation, significant reduction of BP, as well as improvement of glucose tolerance evidenced by lower fasting glucose levels as well as a reduction of insulin and C-peptide levels 3 months post procedure occurred.

Increased sympathetic activity is present in patients with heart failure and it is correlated with functional class. The renal afferent sympathetic activity might contribute to this phenomenon, so effective modulation by renal denervation



might help to treat patients with heart failure. Increased renal sympathetic activity might also play a role in the development of resistance to atrial natriuretic peptide. Renal



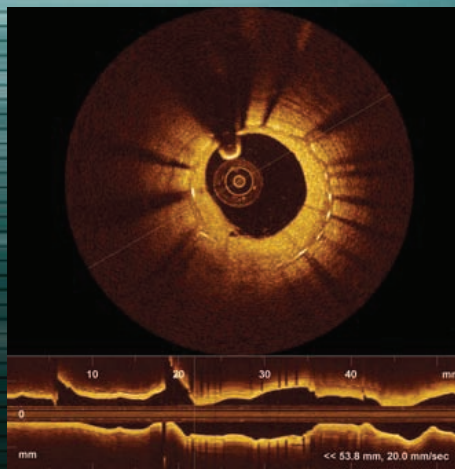
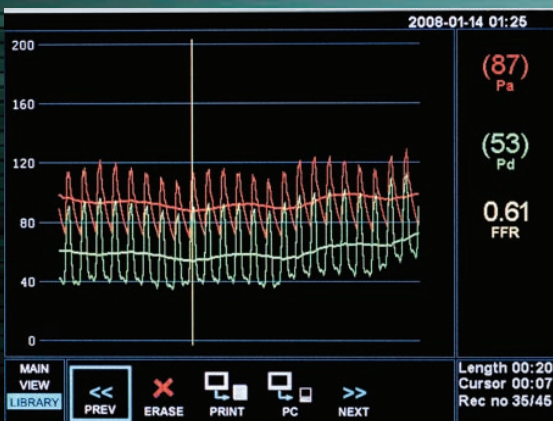
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1. Tonino P, et al. Fractional Flow Reserve versus Angiography for Guiding Percutaneous Coronary Intervention. NEJM. 2009;360:213-224.

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denervation in Patients With Chronic Heart Failure & Renal Impairment Clinical Trial (SymplicityHF) study (NCT01392196) is a feasibility study which will assess the safety of renal denervation in 40 patients with heart failure over a 6-months follow-up.

In 2011, recruitment for the Symplicity HTN-3 trial started

in the USA with a protocol that was more stringent than Symplicity HTN-2 and involved more frequent ABPM. If the results of the Symplicity HTN-3 trial are as gratifying as that of Symplicity HTN-2, a true alternative to medications will exist for refractory hypertension. Many other ongoing clinical trials have been designed to address and hopeful-

ly answer important questions about specific approaches to reducing cardiovascular risk and the progression of CKD in patients with hypertension. In addition, future research needs to investigate whether renal denervation can be applied in milder forms of hypertension for noncompliant patients and patients intolerant to medication.

ACS Today-Unsettled Issues

Coronary Arena, Mugunghwa Hall 1, Level 1, Coronary Session 3, 2:00 PM – 3:00 PM, Coronary Session 5, 5:00 – 6:00 PM

Significant advances have been made over the past 2 decades on ST-segment elevation myocardial infarction (STEMI) care, including reducing the door-to-balloon time and the development of new anticoagulants and antiplatelet agents for secondary prevention. However, many questions still remain. We discussed unclear issues yesterday, balancing the reduction of ischemic events, the increase in bleeding with anticoagulation and antiplatelet agents, and the role and optimal method for thrombectomy in STEMI care.

Balance of Ischemia vs Bleeding

For STEMI, we have 3 major options for acute anticoagulants: unfractionated heparin, low-molecular-weight heparin, and bivalirudin. Unfractionated heparin and low-molecular-weight heparin usually should be used with glycoprotein IIb/IIIa inhibitors. In part, that's because both heparin agents actually activate platelets. Therefore, IIb/IIIa blockers are great in that setting. On the other hand, that further increases bleeding and thrombocytopenia. Bivalirudin monotherapy with reserving IIb/IIIa

inhibitors just for acute thrombotic complications is an alternative and independently does not only prohibit platelets but inhibits both collagen- and thrombin-induced platelet activation. The highest-risk patients with STEMI were in the large HORIZONS-AMI trial in which 3,600 patients at 123 sites were randomly assigned to heparin and glycoprotein IIb/IIIa inhibitors vs bivalirudin alone. There was a statistically significant 1% reduction in all-cause mortality and even a greater reduction in cardiac mortality at 30 days; that persisted at 1 year and at 3 years and the mortality curves are diverging over time.

The first thing to note is that the ADP antagonists (clopidogrel, prasugrel, and ticagrelor) are integrally important in all patients who receive stents, but also in ACS. So we've seen that from the early CURE days in non-ST-segment elevation ACS. Numerous studies showed more potent ADP antagonists comparing an active control with an inactive control, reducing ischemic complications and stent thrombosis. We could look at 300 vs 600 mg of clopidogrel with a week of double-dose clopidogrel in the CURRENT-OASIS 7 trial reduced stent thrombosis, reduced MI. We can then look at the all-comers ACS population prasugrel

vs clopidogrel and ticagrelor vs clopidogrel in TRITON and PLATO, respectively. They decreased stent thrombosis and reduced MI with those 2 agents because of the advantage of being more rapidly acting, effective within 1 hour at which even 600 mg of clopidogrel takes 2-6 hours. There is no doubt that we can reduce ischemic complications. The problem is increased hemorrhagic complications. Clopidogrel is reasonably well tolerated. It's associated with about a 1% per year incidence of major bleeding on top of aspirin alone. The prasugrel,

we had an increase in both TIMI major and TIMI minor bleeding in the entire population of ACS treated in more than 13,000 randomly assigned patients. There was also an increase in fatal and nonfatal bleeding. That obliterated any sort of mortality benefit, so mortality was very similar between prasugrel and clopidogrel. In a post hoc analysis, we thought that we've identified the 3 groups who were most likely to not receive benefit from the drug, especially the prior transient ischemic attack and stroke group, but also elderly patients and patients with low body weight. Ticagrelor is somewhat different from prasugrels, which is an irreversible agent. Ticagrelor is a reversible agent with a shorter half-life. It's off the platelet in about 3 days. And in the PLATO trial, we saw an increase in non-CABG (coronary artery bypass graft) bleeding very similar to what we saw with prasugrel. However, there was not an increase in fatal and life-threatening bleeding. Ticagrelor had a significant reduction in ischemic events, and as a result, there was a fairly striking reduction in mortality from about 5.9% to 4.5% at the end of the 1-year follow-up period.

Aspiration of Thrombus

Multiple studies had looked at simple thrombus aspiration; we basically sucked out the clot through a straw vs more active devices such as the AngioJet® [Medrad, Inc.; Warrendale, Pennsylvania] vs distal or embolic protection devices. The distal or embolic protection devices have been really neutral in their effect. The AngioJet: First there was a negative trial [AiMI] showing harm and now there is a more positive trial that didn't quite reach its primary endpoint in the JETSTENT trial. However, most investigators were really focused on simple thrombus aspiration. They saw all these beautiful pictures of all this thrombus that was sitting in the baskets after they suck it out. The questions are 1) what are you leaving behind? 2)

does it really improve patient outcomes? There have been about 23 randomized trials and 5 meta-analyses in this area already. When we looked at the overall results of the trials, we looked overall on the favorable side, kind of how the IIb/IIIa inhibitors looked overall on the favorable side. However, they're driven by one trial primarily, the TAPAS trial, which was a single-center trial that had 1,000 randomly assigned patients and had a borderline significant P value, not early, but late, with an absolute magnitude of reduction of 3.5%. This was an unexpected finding in an underpowered trial that we've got to be very careful about. The single-center trials led by TAPAS, had an improved ST-segment resolution, improved myocardial blush, and decreased mortality. The multicenter trials had no efficacy and were absolutely neutral. Yesterday, we saw big outcomes trial which is called INFUSE AMI.



The lead investigator Dr. Gregg Stone presented the INFUSE-AMI study ACS session. The intracoronary administration of abciximab (ReoPro, Eli Lilly) injected into

the infarct area site resulted in a significant, albeit reduction in infarct size in patients presenting a large anterior ST-segment elevation MI (STEMI), whereas the use of aspiration thrombectomy failed to have any specific effect on myocardial infarct size. However intracoronary abciximab thrombectomy could not improved myocardial reperfusion, ST-segment resolution, clinical event rates at 30 day. We need another big outcomes trial to clarify the story for thrombectomy. There are 2 large outcomes trials going on. One is the TASTE trial in about 5,000 patients in Sweden and the other one is the TOTAL trial, with about 4,000 patients in the United Kingdom; those are all both multicenter, very large outcome trials. They are going to be the definitive answer to aspiration.

	Bivalirudin (n = 9406)	Heparin+GPI (n = 9413)	Adjusted HR (95% CI)	p Value
REPLACE-2	1.9% (56/2994)	2.4% (72/3008)	0.78 (0.55-1.10)	0.16
ACUTY	3.7% (170/4612)	3.9% (178/4603)	0.96 (0.77-1.18)	0.67
HORIZONS-AMI	3.4% (61/1800)	4.8% (86/1802)	0.71 (0.51-0.98)	0.038
Pooled	3.1% (287/9406)	3.6% (336/9413)	0.84 (0.72-0.99)	0.035

	MI	Stent Thrombosis
CURRENT-OASIS		
Double-dose clopidogrel (600mg)	1.9%	1.6%
Standard-dose clopidogrel (300 mg)	2.2%	2.3%
HR (95% CI)	0.86 (0.72-1.02)	0.68 (0.55-0.85)
p Value	0.09	0.001
TRITON-TIMI 38		
Prasugrel	7.3%	1.1%
Clopidogrel	9.5%	2.4%
HR (95% CI)	0.76 (0.67-0.85)	0.48 (0.36-0.64)
p Value	<0.001	<0.001
PLATO		
Ticagrelor	5.8%	1.3%
Clopidogrel	6.9%	1.9%
HR (95% CI)	0.84 (0.75-0.95)	0.67 (0.50-0.91)
p Value	0.005	0.009

Yesterday's Hot lives

Transcatheter Aortic Valve Implantation with the Edwards Valve

Yesterday, Dr. Martin B. Leon and Seung-Jung Park demonstrated successful treatment with the Edwards valve for severe aortic valve AV stenosis. A 74 year-old female was admitted with dyspnea on exertion (NYHA class II) for two months. She has a past medical history of diabetes, hypertension, COPD and claudication. Logistic EuroSCORE was 24.34%. Coronary angiogram was normal. Transthoracic echocardiography showed severe degenerative AV stenosis and concentric LVH with normal LV systolic function (EF=66%). AV area by continuity equation was 0.8 cm². TransAV maximal velocity was 4.4 m/s. Mean and peak pressure gradient were 41 and 78 mmHg. Transesophageal echocardiography (TEE) showed the motion limitation of AV opening because of calcification and degenerative change (Figure 1). On TEE AV was tricuspid and annulus size was 20 mm (Figure 2). Annulus size by computed tomography (CT) was 19-20 mm and perimeter was 70 mm. Distance from annulus to LM and RCA

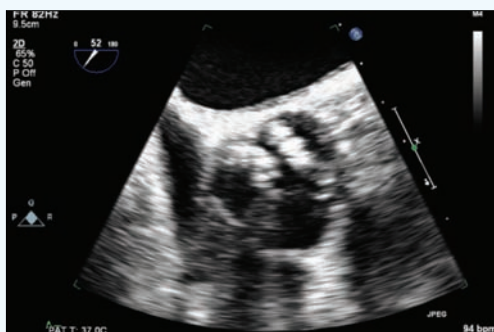


Figure 1. Aortic Valve on TEE

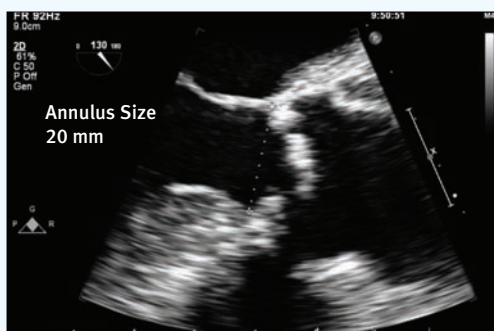


Figure 2. Annulus Size on TEE

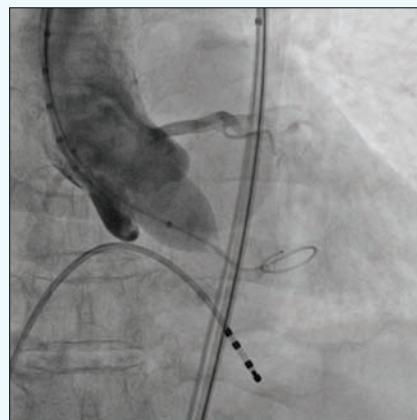


Figure 3. Predilatation of AV (20x40 mm Edwards transfemoral balloon)

ostium was 16.2 and 13.7 mm, respectively. The right peripheral artery was large enough to assess. Therefore, we decided approach the right femoral artery.

The aortic annulus size measured by TEE and CT was about 20 mm and perimeter was 70 mm. Therefore, a 23 mm Edwards SAPIEN valve was selected for implantation. Under sedation, 6 Fr sheath and temporary pacemaker were inserted through left femoral vein, and 7 Fr sheath and 6 Fr pig-tail catheter were inserted through left femoral artery. We checked proper puncture site of right femoral artery after angiogram with pig-tail catheter. 7 Fr sheath was inserted through right femoral artery, and then three

8 Fr Proglide devices were placed into the right femoral artery. Right femoral artery was dilated using dilators from 16 Fr to 18 Fr, and then 18 Fr Edwards sheath was inserted, sequentially. An AL 2 diagnostic catheter with a 0.032 inch Terumo wire was used to cross the aortic valve. After crossing AV, predilatation of the stenotic AV was undertaken with a 20 mm x 40 mm Edwards transfemoral balloon under rapid ventricular pacing and aortic root angiography (Figure 3). Under fluoroscopy control, a 23 mm Edwards SAPIEN prosthesis crimped on the delivery catheter (RetroFlex 3 Delivery System) was placed at the best position of the aortic annulus and then it was successfully deployed by inflat-

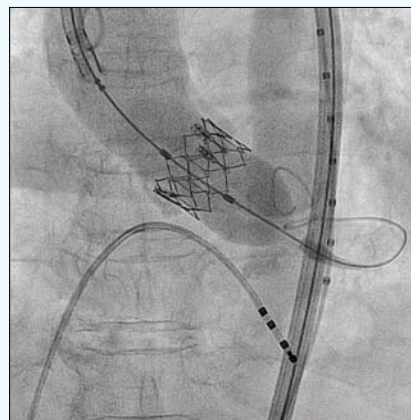


Figure 4. Placement of 23 mm Edwards SAPIEN Valve

ing the balloon under rapid ventricular pacing and aortic root angiography (Figure 4). Final fluoroscopy showed well positioned Edwards SAPIEN Valve. After the intervention, puncture site was sutured with prepared three Proglides.

Kissing Stenting Technique to Treat the Distal LM Trifurcation Lesion

Yesterday, Dr. Seung-Jung Park and Roxana Mehran treated distal LM trifurcation lesion. A 75 year-old woman was readmitted for staged PCI at LM trifurcation lesion. Two weeks ago, she visited our hospital due to effort chest pain for about six months. At that time, echocardiography showed normal systolic function (EF=60%) without RWMA. Treadmill test was positive at stage 2 and coronary angiogram showed LM with triple vessel diseases. Her coronary risk factors were hypertension and hyperlipidemia. Her SYNTAX score was 35. Therefore, she firstly underwent PCI with two Promus Element stents (3.0x38 mm and 2.75x38 mm) at proximal to mid RCA lesion. Left coronary angiogram showed tight stenosis at distal LM trifurcation and distal LCX (Figure 1).

An 8 Fr sheath was inserted through right femoral artery and the left coronary ostium

was engaged with an 8 Fr JL 4.0 catheter with side hole. Three 0.014 inch BMW wires were inserted into the LAD, RI, and LCX, respectively. And then, they performed intravascular ultrasound (IVUS) evaluation from LM to LAD, RI, and LCX, respectively. Before LM treatment, they firstly fixed distal LCX lesion with a Xience Prime stent 2.75x23 mm. Predilatation was done using a Maverick balloon 2.5x15 mm at LM and proximal LAD. And then, the distal LM trifurcation lesion was treated by kissing stenting technique because of a marked size discrepancy between LM and side branches. Two 2.75x23 mm Xience Prime stents were deployed at LM to proximal LAD and LM to proximal LCX. At post-stenting IVUS evaluation, underexpansion was noted. To get the optimal minimal stent area, kissing balloon technique using a Dura Star balloon 3.0x15 mm and a Trek balloon 3.0x15 mm was applied at LAD and LCX, respectively. Final angiogram showed a good result (Figure 2).

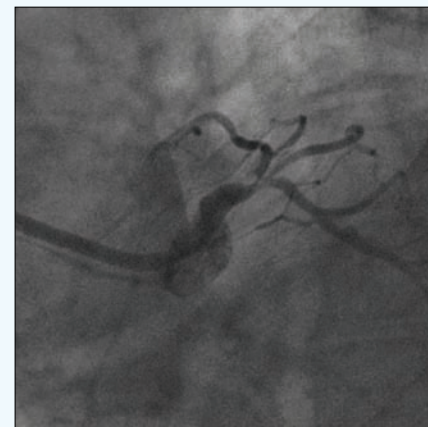


Figure 1. Tight Stenosis at Distal LM Trifurcation

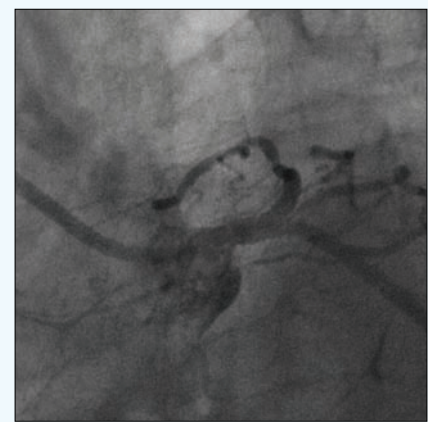


Figure 2. Left Coronary Angiogram after Successful Stenting at Distal LM & Proximal LCX

Anticoagulant 2012: Dabigatran, Apixaban, Rivaroxaban and New

Friday, April 27, Room 1-1, Level 1, 7:00 AM – 8:10 AM

In today's morning round table forum, many experts presented the role of new anticoagulants in atrial fibrillation or coronary artery disease patients.

Recently, many new anticoagulants were developed and evaluated in clinical trials. Apixaban is a novel oral direct factor Xa inhibitor that has been shown to reduce the risk of stroke in a similar population in comparison with aspirin. The ARISTOTLE study is a randomized, double-blind trial to compare apixaban (at a dose of 5 mg twice daily) with warfarin (target international normalized ratio, 2.0 to 3.0) in 18,201 patients with atrial fibrillation and at least one additional risk factor for stroke. The primary outcome was ischemic or hemorrhagic stroke or systemic embolism. During the follow-up period of 1.8 years, the rate of the primary outcome was 1.27% per year in the apixaban group, as compared with 1.60% per year in the warfarin group (hazard ratio with apixaban, 0.79; 95% confidence interval [CI], 0.66 to 0.95; $P < 0.001$ for noninferiority; $P = 0.01$ for superiority). The rate of major bleeding was 2.13% per year in the apixaban group, as compared with 3.09% per year in the warfarin group (hazard ratio, 0.69; 95% CI, 0.60 to 0.80; $P < 0.001$), and the rates of death from any cause were 3.52% and 3.94%, respectively (hazard ratio, 0.89; 95% CI, 0.80 to 0.99; $P = 0.047$). The rate of hemorrhagic stroke was 0.24% per year in the apixaban group, as compared with 0.47% per year in the warfarin group (hazard ratio, 0.51; 95% CI, 0.35 to 0.75; $P < 0.001$), and the rate of ischemic or uncertain type of stroke was 0.97% per year in the apixaban group and 1.05% per year in the warfarin group (hazard ratio, 0.92; 95% CI, 0.74 to 1.13; $P = 0.42$). They showed that in patients with atrial fibrillation, apixaban was superior to warfarin in preventing stroke or systemic embolism, caused less bleeding, and resulted in lower mortality (Figure 1). Dabigatran is another oral anticoagulant from a class of

direct thrombin inhibitors. The RE-LY study evaluated the efficacy and safety of two different doses of dabigatran relative to warfarin in over 18,000 patients with atrial fibrillation. 18,113 patients with atrial fibrillation were randomized to one of three arms: (1) adjusted dose warfarin, (2) dabigatran 110 mg twice daily, or (3) dabigatran 150 mg twice daily. Dabigatran 110 mg was non-inferior to warfarin for the primary efficacy endpoint of stroke or systemic embolization, while dabigatran 150 mg was significantly more effective than warfarin or dabigatran 110 mg. Major bleeding occurred significantly less often with dabigatran 110 mg than warfarin; dabigatran 150 mg showed similar bleeding to warfarin. Another study, RECOVER, demonstrated non-inferiority of dabigatran when compared to warfarin in the treatment of acute venous thromboembolism with a similar rate of major bleeding and a lower rate of combined major and non-major bleeding. Patients randomized to dabigatran had fewer minor bleeds, but more dyspepsia and more drug discontinuation.

Rivaroxaban is the first available orally active direct factor Xa inhibitor. Rivaroxaban has been studied in phase III clinical trials for stroke prevention in non-valvular atrial fibrillation (ROCKET-AF), prevention of VTE in hospitalized medically ill patients (MAGELLAN), treatment and secondary prevention of VTE (EINSTEIN), and secondary prevention of major cardiovascular events in patients with acute coronary syndrome (ACS) (ATLAS ACS TIMI 51). More than 8,000 patients have been enrolled in the rivaroxaban clinical development program overall. The study has been completed and shows that taking rivaroxaban once daily for 35 days was associated with a reduction in the risk of venous thrombosis, compared with standard 10-day treatment with enoxaparin by subcutaneous injection, in acutely ill medical patients. However, bleeding rates were significantly increased with rivaroxaban. These new anticoagulants may improve the clinical outcomes of patients suffering from thromboembolic events or were at high risk.

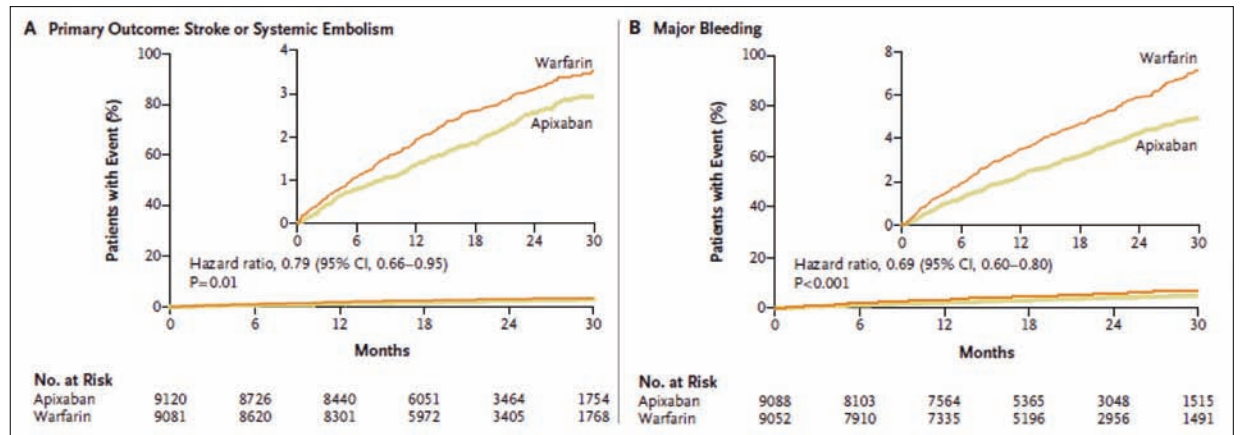


Figure 1. New anticoagulant, apixaban, was superior to warfarin in preventing stroke or systemic embolism, caused less bleeding, and resulted in lower mortality.

Left Main Intensive Course FFR & IVUS Guided PCI

[Program]

Catheterization Laboratory Activities

- 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

and much more...

Evidence-Based Lectures

- Core Lab Analysis
- DES Issues
- Complex Angioplasty
- ACS Guideline
- Preventive Medicine
- Transcatheter Valve Therapies

and much more...

[Registration Site & Contact]

Attn: Ms. Hyerim YUN (CVRF)
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For more information, please visit to www.cvrf.org

Place

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Nurse Continuous Education Course: Care for Patients with Heart Disease

Main Arena, Vista Hall, Level B2, 8:30 AM – 3:30 PM

Joint Program with ANGIOPLASTY SUMMIT-TCTAP 2012 KCTA Symposium (The 15th Annual Conference for Cardiovascular Nurse and Technologist), Co-organized by Korean Nurses Association and Korean Cardiovascular Technology Association

During the daily practice and research activities, the role and position of the cardiovascular nurse and technologist have been very important. The CVRF (Cardiovascular Research Foundation) has provided substantial efforts for the growth of Nurse-Tech symposium. As a result, in

the last several years the Nurse-Tech symposium at the ANGIOPLASTY SUMMIT-TCTAP has grown and provided the contributions to TCTAP meeting. The annual TCT Nurse-Tech course provides an invaluable opportunity for catheterization laboratory nurses, technologists, hospital adminis-

trators and other allied healthcare personnel to be exposed to the most contemporary advances in the field and to learn from each other. The Nurse-Tech course has been the perfect complement to physician education at TCT, which together have contributed to improved outcomes

for patients with cardiovascular disease. The meeting will be held Friday, April 27, in the Main Arena, Vista Hall, Level B2, Sheraton Walkerhill Hotel, 8:30 AM~3:30 PM.

6th Cardiopulmonary Rehabilitation Workshop 2012

Tutorial Arena, Level 4, 8:30 AM - 12:45 PM

In Conjunction with ANGIOPLASTY SUMMIT-TCTAP 2012, Co-organized by Korea Association of Cardiovascular and Pulmonary Rehabilitation (KACVPR)

After organization of KACVPR (www.kacvpr.com), the annual workshop for the specialized cardiopulmonary rehabilitation program has been held during the Angioplasty Summit-TCTAP meeting. Same with the last several years, the 6th Cardiopulmonary Rehabilitation workshop will be held on the last day of the Angioplasty Summit-TCTAP 2012.

In the last year, the KACVPR has completed the MOU (memorandum of understanding) with the AACVPR (American Association of Cardiovascular and Pulmonary Rehabilitation, www.aacvpr.org). Also, the cardiac rehabilitation program of Asan Heart

Institute, Asan Medical Center, Seoul, Korea has acquired certification from AACVPR.

Recently, the enormous data about the clinical evidence of cardiac rehabilitation (CR) has been published in several journals with outstanding clinical benefits. Now is the dawn for CR in Korea. We are ready to start this outstanding practice in our daily activity, but the actual situation is pessimistic. There are several reasons for the current situation; first of all, interest from the medical doctors or medical personnel is absolutely deficient. So, KACVPR prepared this workshop program that is of real help to clinical

practices and will help build up their individual CR programs in hospitals nationwide. Come and learn the specialized program "A to Z" of CR program, which has many practiced lectures from AACVPR and KACVPR.

Friday, April 27

Tutorial Arena, Level 4, 8:30 AM - 12:45 PM

- 8:30 AM Opening Remark Young-Soo Jin
- Part I. Webinar: Topics in Cardiopulmonary Rehabilitation
Moderators: Anne Gavic, Larry F. Hamm, Kee-Chan Joo
Panelists: Hong-Jun Cho, Jeongsoon Kim, Kee-Sik Kim, Jeong Sang Lee, Han-Joon Lee, Sung-Soon Lee, Yeon Mok Oh, Jidong Sung
- 8:35 AM Motivations and Barriers for Patients to Enroll Bonnie Sanderson
- 8:55 AM Panel Discussion with Q & A
- 9:00 AM Exercise Training: The Cornerstone of CPRP Philip Ades
- 9:20 AM Panel Discussion with Q & A
- 9:25 AM Smoking Cessation: Its Importance in CPRP Michael Burke
- 9:45 AM Panel Discussion with Q & A
- 9:50 AM AACVPR Guidelines for Pulmonary Rehabilitation Programs - 4th Edition Gerene Bauldoff
- 10:10 AM Panel Discussion with Q & A
Part II. Cardiopulmonary Rehabilitation Program Administration
Moderator: Kee-Chan Joo
- 10:15 AM Core Component of Program Certification Anne Gavic

- 10:35 AM Q & A
- 10:40 AM Two Program Models: Cardiac Rehabilitation in US and Canada Larry Hamm
- 11:00 AM Q & A
- 11:05 AM Case Report: Severance Cardiac Rehabilitation Program Seok-Min Kang
- 11:20 AM Q & A
- 11:25 AM Case Report: Asan Cardiac Rehabilitation Program Jong-Young Lee
- 11:40 AM Q & A
- 11:45 AM Case Report: Pulmonary Rehabilitation Program Yong-Beom Park
- 12:00 PM Q & A
Part III. Psychosocial Aspects in Cardiopulmonary Rehabilitation
Moderator: Jin Pyo Hong
- 12:05 PM The Influence of Emotional Disorder on Cardiovascular Disease; Its Psycho-physiologic Background Jae Min Kim
- 12:20 PM Q & A
- 12:25 PM Psychological Skills and Training for Management of Psychosocial Disorder Byung Su Kim
- 12:40 PM Q & A 12:45 PM Adjourn



CardioVascular Research Foundation (CVRF)

Clinical Research Coordinating Center (CRCC)

Data Management

Improving essential information to prevent and control cardiovascular disease through analysis without bias

- Statistical Analyses
- Data Safety Monitoring Boards (DSMB)
- Publicized Research Studies

Core Laboratories

Providing the result of an unbiased interpretation about pharmaceutical or mechanical intervention in coronary artery disease and cardiac transplant studies

- Quantitative Coronary Angiographic (QCA) Core Laboratory
- Intravascular Ultrasound (IVUS) Core Laboratory
- OCT/VH-IVUS Imaging Center

Conference

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- Focusing on Evidence-based Medicine in Interventional Cardiovascular Medicine
- Live Cases, Late Breaking Clinical Trials, Scientific Symposia, Practical Workshops, Case Reviews, Abstracts, Exhibitions, and much more
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- Live Case Demonstrations: Advanced Operator's Techniques & Novel Devices
- Case Presentations & Reviews: Interactive Discussions with Experts and Q&A
- Special Lectures: Technical Tips & Tricks to Optimize Procedural Success

TRANSCATHETER AORTIC VALVE IMPLANTATION SUMMIT

- Live Cases Demonstrations: TAVI from "A to Z" by Pioneers in this Emerging Technology Field
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- Case Based Learning by Experts' Real Case Presentation

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