

## CVRF Newsletter April 2016, Volume 6

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## PAPER PUBLICATION

### Effect of Statin Treatment on Modifying Plaque Compositions: A Double-Blind, Randomized Study

Journal of American College of Cardiology in 2016

The appropriate treatment of non-ischemia producing coronary artery lesions with unstable plaque morphology is still under debate. Although statins affected atheroma reduction in proportion to the ability to lower low-density lipoprotein (LDL) cholesterol. The lack of serial follow-up imaging data has limited our understanding as to how statins alter the natural course of coronary atherosclerosis.

The Statin and Atheroma Vulnerability Evaluation (STABLE) trial was a prospective, single center, double-blind, randomized study to assess the effect of high- and moderate-dose rosuvastatin on coronary plaque modification. The aims of this study in a prospective cohort of deferred coronary artery lesions were to assess the effect of statin therapy on the serial change in plaque composition within a fibroatheroma-containing target coronary artery segment and to compare the efficacy of high- vs. moderate-intensity statins (rosuvastatin 40mg vs. 10mg) on plaque modification assessed by using serial multimodality

intravascular imaging at baseline and at 12-month follow-up. A total of 312 patients with a virtual histology intravascular ultrasound (VH-IVUS)-defined fibroatheroma-containing index lesion were randomly assigned to rosuvastatin 40mg vs. 10mg (2:1 ratio). In 225 (72%) patients, grayscale- and VH-IVUS were completed at both baseline and 12 months. The primary endpoint was the change in VH-defined %compositional volume within the target segment from baseline to follow-up in the per protocol analysis set. The %necrotic core (NC) volume within the target segment significantly decreased from  $21.3 \pm 6.8\%$  to  $18.0 \pm 7.5\%$  during 1-year follow-up, whereas %fibrofatty volume increased ( $11.7 \pm 5.8\%$  vs.  $14.8 \pm 9.3\%$ , all  $p < 0.001$ ). The %fibrous ( $59.4 \pm 7.8\%$  vs.  $59.2 \pm 8.6\%$ ) and %dense calcium ( $7.6 \pm 5.1\%$  vs.  $7.8 \pm 5.6\%$ ) volumes were unchanged.

(See Effect of Statin Treatment on Modifying Plaque Compositions, Page 2)

## Long-term Mortality After Coronary Artery Bypass Graft Surgery versus Drug-eluting Stents Implantation for Non-diabetic Patients with Multivessel Coronary Artery Disease: Analysis of Pooled Data from the BEST and SYNTAX Trials

Journal of American College of Cardiology

Both coronary artery bypass graft surgery (CABG) and percutaneous coronary intervention (PCI) play a major role in the management of multivessel coronary artery disease (CAD). Since the introduction of drug-eluting stents (DES), PCI has become a widely used option for the treatment of multivessel CAD. Several randomized trials comparing the relative outcomes of CABG versus PCI in patients with multivessel CAD have been published. In general, diabetic patients have poor clinical outcomes than non-diabetic patients, and better survival with CABG than PCI. Though, controversy still exists as to the optimal revascularization strategy in non-diabetic patients with multivessel CAD. Death from any cause is undoubtedly the most unbiased endpoint to determine treatment strategy, but each randomized trials have showed limited power to assess the clinical equipoise between CABG and PCI regarding mortality. Pooling of patient-level data from these randomized trials might be suggested for increasing the statistical power and allowing time-to-event analysis on this issue.

In this issue of Journal of American College of Cardiology, Dr. Chang et al. performed patient-level meta-analysis to compare long-term outcomes of the two revascularization strategies in 1,275 non-diabetic patients with multivessel CAD. Data were pooled from the BEST and SYNTAX trials. The primary outcome was death from any cause. The median follow-up was 61 months (interquartile range, 50-62 months). The risk of death from any cause was significantly lower in the CABG group than in the PCI group (hazard ratio [HR], 0.65; 95% confidence interval [CI], 0.43-0.98;  $P=0.039$ ). A similar finding was observed for the risk of death from cardiac causes. The superiority of CABG over PCI was consistent across the major clinical subgroups. Besides, they found that in patients with low SYNTAX scores, the two strategies were comparable regarding mortality, but in those with intermediate or high SYNTAX scores, CABG was distinctively superior to PCI with DES. These findings support that CABG is the preferred approach for patients with multivessel CAD, and PCI may be a valid option for selected low-risk patients with multivessel CAD.

Likewise, the rate of myocardial infarction was remarkably lower after CABG than after PCI (HR, 0.40; 95% CI, 0.24-0.65;  $P<0.001$ ). The cumulative incidence of myocardial infarction tended to reach a plateau soon after CABG, whereas it continued to accrue over time after PCI with DES. These findings are supporting the idea that CABG may bypass the vulnerable segments of a coronary artery and builds healthy connects that prevents future coronary events. Whereas, the rate of stroke was numerically higher, but not significantly different between the two groups (HR, 1.13; 95% CI, 0.59-2.17;  $P=0.714$ ). The need for repeat revascularization was significantly lower in the CABG group than in the PCI group (HR, 0.55; 95% CI, 0.40-0.75;  $P<0.001$ ). Overall, CABG significantly reduced the risk of death from any cause and myocardial infarction but carried a small risk of stroke compared to PCI with DES. Understanding the long-term outcomes of non-diabetic patients with multivessel disease, CABG should be offered to a particular patient for the better survival and greater protection against myocardial infarction. This study was published in Journal of American College of Cardiology.

## Effect of Statin Treatment on Modifying Plaque Compositions

The frequency of VH- (55% vs. 29%) was significantly decreased. Also, there were overall decreases in normalized total ( $202.9 \pm 72.3$  mm<sup>3</sup> vs.  $188.5 \pm 67.8$  mm<sup>3</sup>,  $p=0.001$ ) and percent ( $51.4 \pm 8.3\%$  vs.  $50.4 \pm 8.8\%$ ,  $p=0.018$ ) atheroma volumes.

The change in %NC volume significantly correlated with the change in hs-CRP ( $r=0.184$ ,  $p=0.015$ ), but not with the change in LDL ( $r=-0.054$ ,  $p=0.43$ ). VH-defined TCFA-containing lesions at baseline showed a greater change in %NC volume at follow-up compared to those without a VH-TCFA ( $-5.2 \pm 9.6\%$  vs.  $-0.9 \pm 6.8\%$ ,  $p=0.001$ ). The change in %NC volume did not correlate with the change in normalized TAV ( $r=0.067$ ,  $p=0.316$ ). Independent predictors of the %NC volume change were body mass index ( $B=0.37$ , 95% CI= $0.05-0.70$ ), high sensitive-C reactive protein ( $B=-3.16$ , 95% CI= $-5.64- -0.69$ ), and baseline %NC volume ( $B=-0.44$ , 95% CI= $-0.68- -0.19$ , all  $p<0.05$ ). The changes in VH-defined %compositional volumes within the target segment were similar between rosuvastatin 40mg vs. 10mg groups. During 12 months follow-up, there was no cardiac death. Non-culprit related major adverse cardiac events occurred in eight (3.6%) patients (seven target lesion revascularization and one myocardial infarction).

The results indicate that the amount and composition of atherosclerotic plaques can be modified by statin therapy.

Rosuvastatin seemed to be effective in reducing %NC volume irrespective of previous statin exposure or clinical presentation. Although high-dose rosuvastatin was associated with a greater decrease in LDL-cholesterol levels, intravascular imaging effects at one year of follow-up were equivalent between the two groups (40mg vs. 10 mg). The direct correlation between the reduced %NC volume and the change in hs-CRP (not LDL cholesterol) implied that the anti-inflammatory effect of rosuvastatin may be an important mechanism of the plaque compositional changes. In the current analysis the frequency of VH-TCFA decreased from 55% to 29%; and VH-TCFA-containing lesions at baseline had a greater reduction in %NC volume compared to those without. Thus, patients with elevated hs-CRP levels, large %NC, and the presence of VH-TCFA appeared to be more responsive to statin therapy. There were no significant differences in the primary and secondary efficacy endpoints between rosuvastatin 40mg vs. 10mg. This may be explained by ethnic differences. Thus, moderate-dose statins (atorvastatin 20mg/day or rosuvastatin 10mg/day) in Asians with a smaller body size may be as effective as high-dose statins in Caucasians. This study will be published in Journal of American College of Cardiology in 2016.

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## Inside TCTAP2016 'Unceasing Change and Evolution'



Welcome to TCTAP2016, the platform of medical exchange in the field of cardiology. TCTAP has been making the history of unceasing change and evolution for two decades.

Upon the success of past meetings, TCTAP has been offering a top-notch scientific and educational program providing more precise direction that leads to better treatment options for the cardiovascular patients.

With the coming of the 21<sup>st</sup> anniversary, it keeps building momentum as the must-attend conference that inspires the next generation of cardiovascular field. Through Interaction, you could get Inspiration and bring Innovation to your daily practice after this amazing conference.

Following changes will be highlighted at TCTAP in 2016.

### New Organization; Bring the new way of thinking

TCTAP is thrilled to introduce the newly organized course directors of TCTAP2016, Drs. Myeong-Ki Hong, Bon-Kwon Koo, Cheol Whan Lee, and Seung-Jung Park from Korea, and Drs. John Robert Laird, Jr., Martin Bert Leon, Gary S. Mintz, and Gregg W. Stone from USA. No doubt this distinguishing line up of course directors will pave the new way of thinking and provide guidance on this amazing conference we have made in last 20 years. Their unique perspectives and experience will be fully committed to designing an attractive program over the four days.

### TCTAP Pre-workshop Course; More comprehensive contents

TCTAP fellowship course is reborn under the name of TCTAP Pre-workshop Course with enhanced contents of interventional cardiology. This workshop will provide a comprehensive overview and latest updates on DES&BRS, Valves, Complex PCI (Left Main and Bifurcation), Endovascular Interventions, Invasive & Non-Invasive Imaging and Physiology. The lectures and presentation given by world leading interventional cardiologists will help the attendees to gain more profound knowledge and know-how of each topic.

### Live Case Demonstration; Expanded live transmission sites

It is really privileged to have 11 world-renowned medical centers transmit variety of cases for live case sessions during the TCTAP2016. Experts from each field will demonstrate procedures with their own tips and tricks and allow attendees to improve their skills in complex cases. This year also will be a great chance to learn various techniques of experts and stimulate daily practices of participants.

### 10<sup>th</sup> CTO LIVE; Partnership with CCT and Asia-Pacific CTO Club

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

### Endovascular Intervention Sessions; Partnership with VIVA

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

## CardioVascular Research Foundation (CVRF)

www.cvrf.org

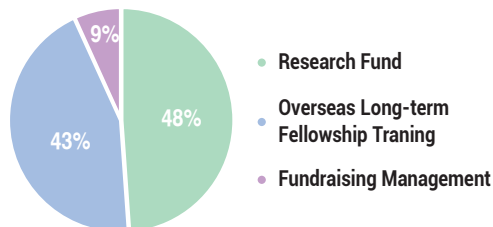
The CardioVascular Research Foundation (CVRF) is a non-profit clinical research foundation that contributes to improving the lives of patients with cardiovascular disease by conducting clinical researches, educating physicians and patients, and organizing international conferences.



## Report for Fundraising of 2015

CardioVascular Research Foundation(CVRF) has been working for fundraising in order to support the overall research of cardiovascular diseases and also the medical treatment of patients in need from 2010.

In 2015, 16.5 million won which accounts for 48% of total expenditure has been used for Research Fund, and 15 million won has been supported for Overseas Long-term Fellowship Training, which came to 43% of total expenditure of fundraising. The remainder was used for the fundraising management.



Especially for Research Fund in 2015, the below research project was carried out under the CVRF's support.

- In Vivo Comprehensive Assessment of the Effects of Angiotensin II Receptor Blocker/Statin on Stabilizing Plaques Using OCT/NIRF Integrative Imaging  
*Jae-Joong Lee, MD*  
(Korea University Guro Hospital)

Also, we supported below applicants who have been participating in Overseas Long-term Fellowship Training program of CVRF.

- Cheol-Ung Choi, MD  
(Fellowship in Emory University, USA from 2014)
- Sang-Rok Lee, MD  
(Fellowship in UC San Diego, USA from 2014)

Through these programs, your invaluable fundraising to CVRF could become a big foundation for overcoming numerous cardiovascular diseases. We always look forward to your great interest and participation.

### Contact

Bella Kim/ bellakim@summitmd.com

## ALL'S IN FACEBOOK!



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## CVRF Welcomes New Staff Members: Mia Choi & Kyla Hwang



Let's meet Ms. Mia Choi of Global Strategic Planning Division and Ms. Kyla Hwang of Convention Division, and their story of how they joined CVRF!

**Welcome on Board! Can you tell us more about yourself and what brought you here?**

**Mia:** I majored French Linguistics and literature in University Chung-Ang, Seoul, Korea. Prior to CVRF, I worked in wine importing company for 3 years as a marketing manager, assisting advertisement, promotions and media planning. I look forward to the opportunity to expand my current role and gain greater exposure to new areas that will challenge me and help me grow my skills.

**Kyla:** In my college, I majored in nursing science. When I

worked for a general hospital as a registered nurse, I was caring patients, giving injection and doing other medical treatments. After that, I applied for a clinical research center affiliated with CVRF as a clinical research coordinator at the beginning. However, Dr. Park suggested the position of convention division at CVRF in the final interview. I believe that it would be brilliant experience that I've never had so, I took up the challenge to get my foot in the new door.

**Please tell us about your team and your current role.**

**Mia:** Global Strategic Planning Division promotes CVRF's featured meetings worldwide and works in close collaboration with global partners and affiliations from all over the world. My job title is marketing manager, and I am responsible for the content of CVRF external communication, including brochure, e-newsletter and social media. I am also facilitating the global networks within South East Asia and India.

**Kyla:** I think the convention division is the core part of this foundation, since my team members plan and organize all of the events like exhibitions, scientific programs, faculty care, and so on. My current role is reviewing all abstract submissions to TCTAP and adjusting the presentation program appropriately for abstract presenters. In addition,

I am also responsible for application process to get authority for operators of the live case session during the conference.

**What's the best part about your job?**

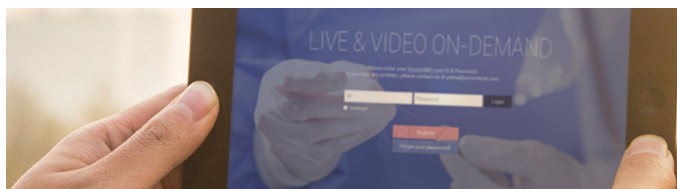
**Mia:** From the day I started at CVRF, I was impressed with the positive attitude of all staff members and this hasn't changed yet. Working at CVRF is like being with family. I really appreciated the pleasant atmosphere and open minded people.

**Kyla:** It is the freedom from three-shift system in a hospital ward. Luckily, since I work for CVRF, my sleep pattern has changed back to be stable and normal. I'm really happy with being able to concentrate on my work efficiently.

**What do you like to do in your spare time?**

**Mia:** I have spent a lot of my time doing practicing Yoga for almost 10 year. After work, I go to gym or yoga class to maintain the balance between work and life. I also love to travel and taking naps in swimming pool.

**Kyla:** I spend my spare time going to a famous jazz club or concert hall with my friends. It makes my inner side calm and peaceful like getting into nirvana. Listening to music with high quality audio equipment is the best way to get rid of stress and depression.



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## Employee Spotlight: Interview with Mi Jeong Kim



Mi Jeong Kim, Director of Administrative & Accounting

**Congratulations on your 10-year work anniversary with CVRF! Tell us about your beginnings and what do you do in here.**

*It was only 5 people and 3 interns in the beginning. We were in charge of organizing TCTAP conferences. We used to stay up really late in the office to prepare with few people but learned a lot at the same time. My job title is the Director of Administrative & Accounting Division. Currently, my team consists of 3 people in total, and I am responsible for various tasks, such as, financial management, conference, research, and education business.*

**In 10 years, what have you found to be the single biggest change you've experienced in CVRF?**

*The biggest change, I think, is that the entire business of*

*CVRF, such as, conference, study, or education, has been systemized. Unlike 10 years ago, the work is now being done more systematically. We can manage faculty invitation, sponsorship, abstract & case submission, and commitment through our integrated website. Also, people can manage the progress of ongoing studies in real time and also interact with one another.*

**Please tell us about your most rewarding or satisfying experience since you joined CVRF.**

*I feel very great when we successfully conduct the conference after putting a lot of elbow grease on it for several months, and get positive feedbacks from attendants.*

**Tell us about your family. What do you enjoy doing with your family?**

*I have a husband and a 7-year-old son. It is so busy that we can't even afford to eat together on weekdays. But, on weekends, we usually go to movie or take a walk in the park. I try to spend time together with them as much as I can on weekends.*

**1<sup>st</sup> TVT AP 2016**

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|                      |                        |
|----------------------|------------------------|
| Runlin Gao, MD       | Ian T. Meredith AM, MD |
| Eberhard Grube, MD   | Seung-Jung Park, MD    |
| Martin Bert Leon, MD | John Graydon Webb, MD  |

## TRAINING PROGRAM

## Interview with Dr. Dede Moeswir, Fellowship Trainee



Dr. Dede Moeswir, 40, is a lecturer and a medical staff in division of cardiology, Islamic State University Syarif Hidayatullah, Jakarta, Indonesia. He joined the fellowship training program from October to November, 2015 and experienced interventional cardiology in Asan Medical Center. He spoke with CVRF recently about fellowship training program.

**CVRF: Would you tell us about your hospital and duties in Indonesia?**

**Dede Moeswir:** Our hospital is the research hospital with two laboratory catheterizations with many procedures we have done from percutaneous coronary intervention, percutaneous transluminal angioplasty for peripheral artery disease, balloon mitral valvuloplasty, to ASD closure with amplatzer septal occlude.

**CVRF: How did you know about this fellowship program and why did you apply for this course?**

**Dede Moeswir:** I got information about this program from CVRF website and I read many papers about study in left main disease, complex angioplasty guided by IVUS which was published in interventional cardiology journal. It interested me to learn in ASAN Medical Center.

**CVRF: What was your first impression of heart institute, Asan Medical Center?**

**Dede Moeswir:** Personally, I felt very welcome from all the warm-hearted staffs and had good discussion from the beginning. For laboratory catheterization, Asan Medical Center had very good technology equipments like FFR, IVUS, OCT, NIRS, virtual histology. For research purpose, I could see research environment from the beginning in AMC. All cases have complete data from baseline characteristic angiography data, FFR data, IVUS data from IVUS core lab, OCT data, spectroscopy data, to visual histology, to learn about plaque.

**CVRF: How was your daily life as a fellowship trainee here in Asan Medical Center?**

**Dede Moeswir:** I really enjoyed my training in AMC, and all staffs were very kind and warm. I always had deep discussion in every case with professors and staffs. And it made me have new horizon about interventional cardiology procedure. I felt very excited because of many interesting cases like left main disease, bifurcation, chronic total occlusion lesion, and also peripheral vascular disease. I could learn so much about tips, tricks and new techniques for complex angioplasty. I could see that it was a wonderful atmosphere for learning here in laboratory catheterization of AMC.

**CVRF: What did you enjoy the most from this program?**

**Dede Moeswir:** I really enjoyed deep discussion about tips, tricks and techniques for complex angioplasty with special use of FFR, IVUS guided PCI. I could learn so much about calcified lesion, reference vessel diameter, landing zone and optimal minimal stent area after stenting, and also OCT which is for left main and bifurcation lesion, and learn more intensively about plaque characteristic with virtual histology.

**CVRF: How did this course influence your daily practice in your hospital?**

**Dede Moeswir:** This course has given me big influence to my daily practice, now I started to do IVUS guided PCI to make better outcome and try to complete all data from my patients that were done from PCI, and follow up the outcome for 3, 6 and 12 months after procedure for research purpose. Also, I try to make my own research project in the future.

**CVRF: Lastly, can you leave a word to persons who are interested in this program?**

**Dede Moeswir:** It was an amazing opportunity to get a chance to learn many interventional cardiology procedures with sophisticated equipments, great tips, tricks and new techniques from the professors in wonderful research atmosphere. It did make me have a new horizon in interventional cardiology field.

### Short-Term Fellowship Training Program

- Candidates: Fellows and young interventionists of Interventional Cardiology
- 2 participants every semester
- Required documents
  - CVRF application form
  - A recommendation letter from applicant's department head
  - Self-introduction (describes applicant's future interest and course)
  - Short CV
- Deadline for application: June & December every year
- Contact: Hyerim Yun / yuyun@summitmd.com