

**CRT-100.78**

**ACE Inhibitors and ARBs In Post-percutaneous Coronary Intervention Contrast-induced Nephropathy (CIN): To Hold or Not to Hold?**



Sagger Mawri, Alexander Michaels, Joesph Gibbs, Assad Nakhle, Saba Assar, James Novak, Bryan Zweig  
Henry Ford Hospital, Detroit, MI

**BACKGROUND** Contrast-induced nephropathy (CIN) is a frequent adverse outcome from percutaneous coronary intervention (PCI). It is common practice to hold angiotensin-converting enzyme inhibitors (ACEI) and angiotensin receptor blockers (ARB) in patients who develop CIN, with the intention to resume as outpatients. This study investigated whether discontinuation of ACEI/ARB in post-PCI CIN was associated with differences in major adverse cardiac or cerebral events (MACCE) and initiation of hemodialysis (HD).

**METHODS** We performed a retrospective study of 414 patients who underwent PCI from 2008 to 2013 and developed CIN, defined as an increase in serum creatinine level of 0.5 mg/dl or 25% from baseline at 48-72 hours after contrast exposure. One hundred fifty-one patients were identified after excluding those who did not meet the criteria for CIN or were not taking ACEI/ARB prior to hospitalization. Chi-square, Fisher's exact, and Wilcoxon rank-sum tests were used to analyze differences in MACCE or HD between post-PCI CIN patients who continued versus discontinued ACEI/ARB. Cox regression analysis was used to assess ACEI/ARB continuation status as a predictor of MACCE or HD.

**RESULTS** Among the 151 patients with CIN, 77 (51%) had their ACEI/ARB continued at hospital discharge, 47 (31%) had their ACEI/ARB discontinued, and 27 (18%) died during hospitalization. There were no significant differences in MACCE or HD between patients in the ACEI/ARB continuation versus discontinuation groups at 1 year of follow-up; however, there was a trend toward more PCI in patients who discontinued ACEI/ARB (17% versus 6.5%,  $p = 0.076$ ). Cox regression analysis demonstrated that continuation of ACEI/ARB at hospital discharge was not a statistically significant predictor of MACCE or HD at 1 year of follow-up.

**CONCLUSION** In patients with CIN after PCI, there is no benefit from holding ACEI/ARB at hospital discharge. Further prospective studies should be performed to confirm these findings.

**CRT-100.79**

**Impact on Clinical Decision-making Process of Two Formulas to Calculate Diameter Stenosis of Coronary Lesions: From Benchmark to Real Cases**

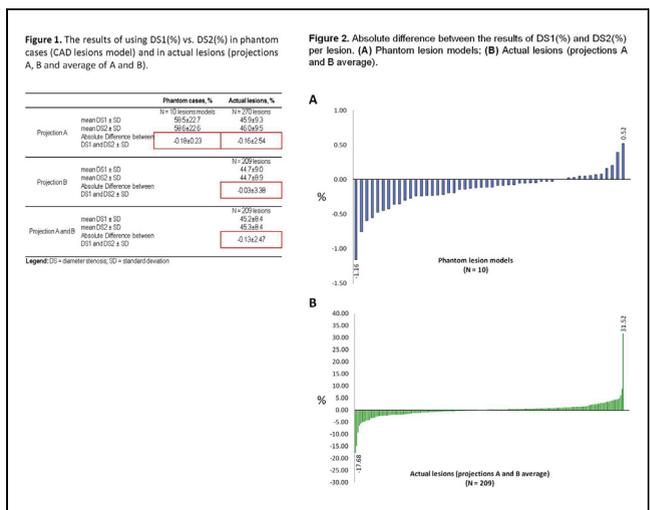


Alexandre Hideo-Kajita, Viana Azizi, Yael F. Meirovich, Gebremedhin D. Melaku, Kayode O. Kuku, Aaphtaab Dheendsa, Solomon S. Beyene, Echo J. Bratwaite, Yuichi Ozaki, Sameer Desale, Ron Waksman, Hector M. Garcia-Garcia  
-MedStar Health Research Institute and MedStar Cardiovascular Research Network, Washington, DC

**BACKGROUND** The 2016 American guidelines for percutaneous revascularization recommend treatment of coronary artery lesions based on diameter stenosis (DS). However, due to the high inter-operator variability in the visual assessment of DS, quantitative coronary analysis (QCA) is the gold standard to assess it. Moreover, there are two DS formulas currently in use, which either use the average of the reference segments (DS1%) or the interpolated reference vessel diameter (DS2%). The aim of this study is to evaluate the difference between DS1% and DS2% assessed by QCA in two datasets, phantom lesion model (i.e., controlled ideal scenario) and actual coronary lesions.

**METHODS/RESULTS** Ten phantom lesion models and 209 intermediate coronary lesions (i.e., DS of 40-80%) from the FIRST trial cohort were assessed by QCA following Corelab standards. The results are presented in Figure 1. Of note, the range of the absolute difference between DS1 vs. DS2 results went from -1.16% to 0.52% in the phantom lesion models, and in the actual lesions dataset the range went from -17.68% to 31.52% (projections A and B) (Figure 2).

**CONCLUSION** The variability of the absolute differences, expressed as standard deviation (SD), of different DS formulas revealed a very narrow range in the phantom lesion model, while the opposite was observed with regard to the SD in the actual cases. Similarly, the range of the differences between DS1 and DS2 was larger in the actual cases compared to the narrow range of the phantom. Clinician and researchers need to be aware of these important differences in results (using different formulas) when looking at the diameter stenosis results.



**CRT-100.80**

**Race, Contrast-induced Nephropathy and Long-term Outcomes After Coronary and Peripheral Angiography and Intervention**



Samuel P. Powell,<sup>1</sup> Dennis A. Hopkinson,<sup>1</sup> Raveen Chawla,<sup>1</sup> Wendy Bottinor,<sup>1</sup> Jeremy Turlington,<sup>1</sup> Kalpesh Patel,<sup>1</sup> Peter Danyi,<sup>2</sup> Victoria C. Garcia,<sup>1</sup> Adam Sima,<sup>1</sup> Ion S. Jovin<sup>1</sup>  
<sup>1</sup>Virginia Commonwealth University, Richmond, VA; <sup>2</sup>Veterans Affairs Medical Center, Salem, VA

**BACKGROUND** Contrast-induced nephropathy (CIN) is a complication of diagnostic angiography and percutaneous coronary and endovascular intervention. It is associated with diabetes and chronic kidney disease, both diseases which are associated with poorer outcomes in non-Caucasians. We investigated the effect of race on the development of CIN.

**METHODS** We studied 4070 predominantly (98%) male patients undergoing peripheral and coronary angiography and percutaneous coronary and endovascular intervention at a Department of Veterans Affairs medical center. We analyzed the incidence of CIN at 72 hours, of renal dysfunction at 3 months as well as the incidence of hemodialysis and of death. CIN was defined as either a rise in creatinine of 25% or an absolute rise in creatinine of 0.5 mg/dl.

**RESULTS** The mean age was 67.2 years. The Caucasian patients (n=2637, 65%) were significantly older, had a lower baseline creatinine, and lower rates of hypertension and diabetes compared to the non-Caucasian patients. Information on creatinine at 3 days was available on 1923 patients and on creatinine at 3 months on 3106 patients. CIN occurred in 92 (7.13%) Caucasian patients (n=1291 patients) and in 42 (6.65%) non-Caucasians at 72 hours after the procedure (odds ratio [OR] 1.08, 95% confidence interval [CI] 0.74 - 1.57; P=0.69). At 3 months, renal dysfunction was seen in 231 (11.24%) Caucasian patients (n=2056) versus 121 (11.52%) of the non-Caucasian group (OR 0.97, CI 0.77 - 1.23; P=0.81). After a follow-up of 5 years, of the 4070 patients, 17 patients (0.64%) of the Caucasian group were placed on dialysis versus 27 (1.88%) of the non-Caucasian group (OR 0.34, 0.18 - 0.62; P=0.0004) and 622 (23.59%) of the Caucasian patients had died compared to 235 (23.38%) of the non-Caucasian group (OR=1.01, 95% CI 0.87 - 1.18; P=0.88).

**CONCLUSIONS** In this cohort of patients, race was not associated with the development of CIN at 72 hours, or the development of renal dysfunction at 3 months post angiography or intervention. In the long term, the rate of initiation of dialysis was significantly lower in the Caucasian patients but mortality was not.

#### CRT-100.81

##### Inflammation in Endocrine Perivascular Fat Tissue and State of Tunica Media in Atherosclerotic Coronary Arteries



Marjeta Zorc,<sup>1</sup> Ruda Zorc Pleskovic,<sup>1</sup> Ales Pleskovic,<sup>2</sup> Olga Vraspir Porenta,<sup>1</sup> Danijel Petrovic,<sup>1</sup> Dusan Suput,<sup>1</sup> Aleksandra Milutinovic Zivin<sup>1</sup>

<sup>1</sup>University of Ljubljana, Medical Faculty, Ljubljana, Slovenia;

<sup>2</sup>University Medical Center of Ljubljana, Department of Internal Medicine, Ljubljana, Slovenia

**INTRODUCTION** Coronary artery disease (CAD) is characterized by atherosclerotic changes in vessel wall. Normal histophysiology of tunica media is prerequisite for optimal vessel function. Tunica media is surrounded by adventitial tissue and by perivascular fat tissue (FT) with endocrine properties.

**AIM** The goal of the research was to define the influence of inflammation in FT on morphology of tunica media.

**METHODS** Endarterectomy was performed in coronary arteries (CAs) from 100 symptomatic patients with diffuse obstructive CAD. In the study, 22 CAs that contained FT in adventitia were enrolled. Analysis was performed in vessel sections, stained with haematoxylin-eosin, Movat, and immunohistochemically for leukocyte common antigen. These CAs was divided into 2 groups: FT was not infiltrated (group-0, N=13) and infiltrated (group-1, N=9). Out of 22 observed CAs in tunica media, the outer elastic membrane was estimated as absent (0) and present (1). In tunica media the intensity of inflammatory cells infiltration was estimated as absent (0), minor (1), and major (2). Study was approved by the National Medical Ethics Committee (MEC 170/07/13, MEC 110/03/16).

**RESULTS** Mann Withney test showed that the elastic membrane was more frequently preserved in group-1 than in group-0 (p=0.004) and that the intensity of inflammatory infiltration was more prominent in group-0 than in group-1 (p=0.014). We found significant positive correlation between CAs with presence of inflammatory cells infiltration in FT and presence of outer elastic membrane (p=0.002, Spearman's correlation). We found significant negative correlation between CAs with presence of inflammatory cells infiltration in FT and intensity of inflammatory cell infiltration around intramural vasa vasorum in tunica media (p=0.010).

**CONCLUSIONS** The presence of inflammatory infiltrated endocrine FT protects tunica media from the disintegration of the elastic membrane and inflammation.

#### CRT-100.82

##### Impact of Increasing Body Mass Index on Physician Radiation Exposure During Percutaneous Coronary Intervention



Edwin Mandieka

Michigan State University College of Human Medicine, Grand Rapids, MI

**BACKGROUND** Considering that obese patients emit greater amounts of scatter radiation during fluoroscopic procedures, it is

possible that the growing obesity epidemic could adversely affect the occupational health of physicians performing percutaneous coronary intervention (PCI). This study was performed to determine the impact of patient BMI on physician radiation exposure during PCI.

**METHODS** Real-time radiation exposure data were prospectively collected from PCI cases. Patient radiation dose was estimated using dose-area product (DAP). Using data from an outer dosimeter ( $H_{os}$ ) and body dosimeter ( $H_u$ ), the physician effective dose per case (E) was calculated as  $E = 0.02 (H_{os} - H_u) + H_{os}$ . Patient BMI was categorized using the NIH classification.

**RESULTS** Among 338 consecutive PCI cases, there were significant increases in both patient and physician radiation doses across increasing patient BMI categories. A BMI  $\geq 40$  was associated with a 2.6-fold increase in DAP compared to a BMI  $< 25$  (184.7 [114.8, 249.1] Gy x cm<sup>2</sup> vs. 70.0 [45.0, 103.2] Gy x cm<sup>2</sup>, p<0.001). A patient BMI  $\geq 40$  was associated with a 24-fold increase in physician effective dose compared a patient BMI  $< 25$  (4.8 [0.3, 11.0]  $\mu$ Sv vs. 0.2 [0.0, 4.8]  $\mu$ Sv, p = 0.01). When compared to PCI in patients with a BMI  $< 25$ , PCI in patients with a BMI  $\geq 40$  was associated with a 164% increase in the patient radiation dose and a 2300% increase in the physician radiation dose.

**CONCLUSIONS** Significant increases in patient and physician radiation doses were observed across increasing patient BMI categories, yet patient BMI had a disproportionately greater impact on the relative increase in the radiation dose to physicians. Whereas prior studies have documented the adverse health consequences of obesity on the patient, the findings of this study suggest that patient obesity may have adverse health effects on physicians as well, in the form of increased radiation doses during PCI.

#### CRT-100.83

##### An All-comer Ongoing en-ABL Registry With a Novel Abluminal Coated Sirolimus-eluting Stent: Two-year Clinical Outcomes in Patients With Complex Lesions



Sameer Dani,<sup>1</sup> Devang Desai,<sup>2</sup> Rashmit Pandya,<sup>1</sup> Apurva Vasavada,<sup>3</sup> Prathap Kumar N. Pillai,<sup>4</sup> Nirav Bhalani,<sup>5</sup> Arvind Sharma,<sup>5</sup>

Chirag Sheth,<sup>5</sup> Rutvik Trivedi,<sup>6</sup> Jitendra Singh,<sup>7</sup> Dinesh Shah<sup>8</sup>

<sup>1</sup>Lifecare Institute of Medical Sciences and Research and Apollo Hospitals, Ahmedabad, India; <sup>2</sup>Mahavir Hospitals, Surat, India; <sup>3</sup>Tristar Hospital, Surat, India; <sup>4</sup>Meditrina hospitals, Kollam, India; <sup>5</sup>Rhythm Hospital, Baroda, India; <sup>6</sup>Zydus Hospitals and Healthcare Research Pvt Ltd., Anand, India; <sup>7</sup>Lotus Super Speciality Hospital, Agra, India;

<sup>8</sup>William Beaumont Hospital, Troy, MI

**BACKGROUND** The aim of this registry is to evaluate the clinical performance the Abluminus DES+ (Envision Scientific), Novel Abluminal coated sirolimus eluting stent coated on stent and parts of balloon in a large patient population.

**METHODS** Between January 2012 and October 2017, 2372 patients were enrolled consecutively in this prospective, multi-center, real world, all-comers ongoing registry employing the Abluminus DES+ in patients with significant stenosis in coronary vessels. Primary endpoint is major adverse cardiac event (MACE), which encompasses cardiac death, target vessel myocardial infarction (TV-MI), and target lesion/vessel revascularization (TLR/TVR) at 1-year follow-up. Also, stent thrombosis (ST) was recorded at 1-year follow-up. A subgroup analysis has been conducted in patients presenting with diabetes, acute myocardial infarction, small vessels, and long lesions.

**RESULTS** In this all-comers setting, 1982 (83.56%) and 1498 (63.15%) patients completed 1-year and 2-year follow-up respectively, and follow-up of remaining patients is ongoing. At 1-year follow-up, MACE were reported in 2.67% (53/1982) of patients, comprising 14 (0.71%) cases of cardiac death, 8 (0.40%) cases of TV-MI, and 31 (1.56%) cases of TLR/TVR. Stent thrombosis was reported in 0.66% (13/1982) patients at the end of 1-year follow-up. A MACE rate of 3.60% (54/1498) was observed within the 2-year follow-up for the overall cohort. The low MACE rate was also confirmed for the subgroups at the 1-year follow-up: diabetics (3.31%), acute myocardial infarction (2.97%), small vessels (3.76%), and long lesions (3.54%).

**CONCLUSION** In conclusion, this multi-center, real world, and all-comers registry indicated that the Abluminus DES+ appears to be safe and effective in treating coronary stenosis irrespective of patient complexity.