irrespective of whether FFR or CFVIR is ischemic. This underscores the requirement of both flow and pressure assessment for optimal risk stratification.

**TCT-19**

Fractional Flow Reserved Derived From Computed Tomographic Angiography (FFRCT) for Intermediate Severity Coronary Lesions: Results from the DeFACTO Trial (Determination of Fractional Flow Reserve by Anatomic Computed Tomographic Angiography)

James Min1, Daniel Berman2, Leslie Shavel3, Laura Mauri2, Bon-Kwon Koo4, Andrejs Erglis5, Jonathon Leipsic6

1 Cedars-Sinai Medical Center, Los Angeles, CA, 2 Cedars-Sinai, Los Angeles, USA, 3Emory University, Atlanta, GA, 4Harvard Medical School, Boston, Massachusetts, 5Seoul National University, Seoul, Korea, Republic of, 6Pauls Stradins Clinical University Hospital, Riga, Latvia, 7St Pauls Hospital, Vancouver, British Columbia

**Background:** Non-invasive fractional flow reserve (FFR) derived from typically acquired coronary computed tomographic (CT) angiography (FFRCT) is a novel method that employs computational fluid dynamics to diagnose coronary lesions that cause ischemia. To date, the diagnostic performance of FFRCT versus CT stenosis to effectively diagnose ischemia in vessels with stenosis of intermediate severity (30-70% luminal diameter stenosis) has been inadequately studied.

**Methods:** Amongst 407 vessels from 252 patients at 17 centers in 4 countries who underwent CT, FFRCT, invasive coronary angiography and invasive FFR, we identified 150 vessels of intermediate severity stenosis by CT, CT stenosis, FFRCT, and invasive FFR were interpreted in blinded fashion by independent core laboratories. FFRCT and FFR <0.80 were considered ischemic, while CT stenosis >50% were considered obstructive. Diagnostic performance of CT stenosis alone versus FFRCT alone were evaluated for sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV); as well as employing a decision rule combining FFRCT and CT stenosis wherein maximal per-patient CT stenosis <50% was considered negative for ischemia and suboptimal clinical occlusions were considered positive for ischemia. Area under the receiver operating characteristics curve for FFRCT and CT stenosis were compared for discrimination.

**Results:** For lesions of intermediate stenosis severity, FFRCT demonstrated a sensitivity, specificity, PPV and NPV of 74%, 66%, 40%, and 99%; while CT stenosis demonstrated a sensitivity, specificity, PPV and NPV of 34%, 72%, 27%, 78%. When applying the decision rule, the combination of FFRCT and CT stenosis resulted in a sensitivity, a specificity, PPV and NPV of 34%, 5.8 [4.4, 7.5], 5.8 [4.5, 7.6], 0.82.

**Conclusions:** The present analysis from the largest prospective IVUS study to date, the presence of attenuated plaque, tissue protrusion, reference segment plaque burden and edge dissections were significant predictors of ST, whereas underexpansion and malapposition were not. This highlights the complex relationship between underlying lesion morphology, PCI results and outcomes in pts treated with DES.

**TCT-20**

IVUS Predictors of Stent Thrombosis: Results From the Prospective, multicenter ADAPT-DES Study

Akiko Maehara1, Gary Mintz2, Bernhard Witzenbichler3, D. Christopher Metzger4, Michael Rinaldi5, Ernest Mazzaferri6, Peter Dufy7, Giovra Weisz8, Thomas Stuckey9, Bruce Brodie9, Ke Xu10, Helen Paris11, Rosana Mehran12, Gregg Stone13

1 Cardiovascular Reserarch Foundation and Columbia University Medical Center, New York, NY, 2Cardiovascular Research Foundation, Washington, United States, 3Charité Campus Benjamin Franklin, Berlin, Germany, 4Cardiovascular Research Foundation and Columbia University Medical Center, New York, NY, 5Cardiovascular Research Foundation and Columbia University Medical Center, New York, NY, USA, 6Charité - Universitätsmedizin Berlin, Berlin, Germany, 7Cleveland Clinic, Cleveland, OH, 8Columbia University, New York, USA, 9Pinehurst Cardiology, Pinehurst, NC, 10Columbia University, New York, USA, 11LeBauer Cardiology, Greensboro, USA, 12LeBauer Cardiology Research Foundation, Greensboro, USA, 13Cardiovascular Research Foundation, New York, NY, 14Mount Sinai School of Medicine, New York, NY, 15Columbia University Medical Center and the Cardiovascular Research Foundation, New York, NY

**Background:** Previous IVUS studies examining correlates of drug-eluting stent (DES) thrombosis were retrospective and in small patient cohorts.

**Methods:** ADAPT-DES was a prospective, multicenter, real-world registry of 8,575 consecutive pts at 11 international centers undergoing percutaneous coronary intervention (PCI) with DES designed to determine the frequency, timing, and correlates (clinical, angiographic and plaque activity) of early and late stent thrombosis. During the index procedure, IVUS was used in 3,343 (39.0%) of cases and 1-year follow-up was completed.

**Results:** Average pt age was 64.0 years and 74.1% were male. Patients in the IVUS group were more likely to have ACS and high platelet reactivity to thienopyridine (PRU >200), and were treated with longer and larger stents, and more everolimus-eluting stents. Within 1 year, definite/probable stent thrombosis (ST) occurred in 17 (0.52%) pts in IVUS group vs in 53 (1.04%) pts in non-IVUS group (HR [95%CI] = 0.37 [0.20, 0.69], p =0.0016). (Table). In a propensity adjusted model to account for the predictors of IVUS use, IVUS guidance was independently associated with a reduced 1-year rate of ST (HR [95%CI] = 0.37 [0.20, 0.68], p =0.0014). All-cause death or MI also occurred significantly less frequently in the IVUS group (HR [95%CI] = 0.62 [0.51, 0.75], p =4.40E-05).

**Conclusions:** In the present analysis from the largest prospective IVUS study to date, the presence of attenuated plaque, tissue protrusion, reference segment plaque burden and edge dissections were significant predictors of ST, whereas underexpansion and malapposition were not. This highlights the complex relationship between underlying lesion morphology, PCI results and outcomes in pts treated with DES.