**Presenter:** Shaoxiong Zhang  
**Title of Abstract:** Comparison Study of Coronary CTA with Conventional Invasive Coronary Angiogram  
**Authors:** Shaoxiong Zhang, MD, PhD Zhongzhen Li, MD Daniel Warum, MD Ara Karamanian, MD  
**Modality:** CT  
**Organ System:** CV  
**Purpose:** To investigate the usefulness of coronary CTA for detection of coronary disease in comparison to invasive coronary angiogram.  

**Methods Used:** 57 patients, aged 55 ± 9 years, underwent both ECG-gated CORONARY CTA using a 64-slice MDCT scanner and invasive coronary angiogram. Coronary CTA and catheter-based coronary angiogram were conducted within one-month interval in patients whose symptom remained the same. Coronary CTA images were read blindly to invasive coronary angiogram. Significant stenosis was defined as more than 50% reduction in coronary luminal diameter. Every coronary artery was divided into 15 standard segments for direct comparison of the images obtained from 2 modalities.  

**Results of Abstract:** Significant stenosis was identified in 30 subjects with invasive coronary angiogram. Among them, similar coronary stenosis was found in 27 patients with coronary CTA. 27 subjects had no significant stenosis on invasive coronary angiogram and 25 of them had negative results on coronary CTA. 855 coronary segments from 57 patients were evaluated. 96 segments were demonstrated significant coronary stenosis. Among them, 73 segments were shown similar stenosis on CTA. 23 segments were underestimated/overestimated due to small vessel or heavily calcification. No significant disease on invasive coronary angiogram was found in 759 segments. Among them, no significant lesion was observed in 737 segments on coronary CTA. In addition, coronary CTA provided detailed information on lesions resulting from calcified versus soft plaque. The sensitivity, specificity, positive predict value, negative predict value and accuracy of coronary CTA as compared to invasive coronary angiogram in detection of significant stenosis were 90%, 93%, 93%, 89% and 91% respectively.  

**Discussion:** Coronary artery CTA using MDCT is an excellent non-invasive method in detecting significant coronary stenosis with high accuracy as compared to invasive coronary angiogram.  

**Scientific and/or Clinical Significance?** Coronary CTA is a highly accurate technique for noninvasively detecting clinically significant coronary artery disease.  

**Relationship to existing work** Further investigate the sources of underestimate or overestimated coronary artery stenosis on cardiac CTA in comparison to invasive coronary angiogram.