CORONARY COMPUTED TOMOGRAPHY FOR EVALUATION OF NOVEL STENT TECHNOLOGY

i2 Poster Contributions
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Session Title: CTA/MRI, Imaging in the Cath Lab, Angiography
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Background: Novel stent technology for percutaneous coronary intervention (PCI) requires invasive assessment for preclinical and clinical study. Late lumen loss and lumen diameter are key components of stent assessment, and involve invasive procedures in clinical and preclinical evaluation. This includes histologic (postmortem morphometry) measurements and invasive coronary angiography with or without optical coherence tomography (OCT). Recently cardiac computed tomography angiography (CCTA) has proven useful as an excellent, noninvasive technique that may find use in quantifying stent and lumen parameters. Noninvasive imaging would improve clinical and preclinical evaluation of stent technology. We used CCTA to assess a completely bioabsorbable stent in porcine coronary arteries.

Methods: Invasive OCT measurements of 3 porcine coronary arteries 30 days after implant of a completely bioabsorbable stent were made, and followed by CCTA and 3-D CTA reconstruction for comparison with OCT. Lumen measurements were made in the proximal lumen, proximal stent, mid stent, distal stent and distal lumen.

Results: Mean lumen areas from CCTA differed from morphometric areas by an average of 29.9% while OCT lumen areas differed by 61.2%. The chart below shows mean lumen area measurements.

Conclusion: CCTA performs well in determining lumen characteristics with this bioabsorbable stent technology. This noninvasive method has promise for preclinical and clinical evaluation of novel stent technology.

![Average Lumen Area of OCT, Morphometry, CT](image-url)